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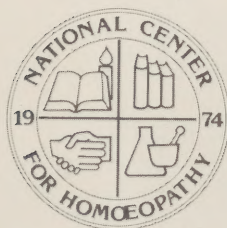
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MERCURY

AND ITS

PREPARATIONS.

A PHARMACOLOGICAL AND THERAPEUTIC STUDY,
ACCORDING TO THE PRINCIPLES OF
HOMŒOPATHY.

BY

EDWARD HUBER, M.D., Vienna.

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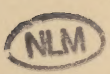
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MERCURY AND ITS PREPARATIONS.

BY DR. HUBER, of Vienna.

I. HISTORY.

Quicksilver is so called from its resemblance in color to silver, and from its property of combining with other metals. The Greek name is equivalent to liquid silver. The Arabs called it Zaibach, Zibach, Zaibach or Zaibar. The Romans termed it *Argentum vivum*, and subsequently *Mercurius*; whence the English, French, Italian and Spanish names: Mercury, Mercure, Mercurio. In the middle ages the alchemists called it *Aqua metallorum*, *Chameleon minerale*, *Semper fugitivus*, *Illafor chemicorum*.

The Ancient Greeks got their knowledge of this, as of most other natural objects, from the Egyptians. They did not use it as a medicine. Aristotle and Theophrastus mention it, though Hippocrates does not. In the days of Galen and Celsus it was proscribed by law as a deadly poison. The Arabs first made frequent and bold use of it in medicine. Rhazes (died 923), Avicenna, Aben Mesue, used it for lice, worms, and scabies. Mirepsius, of Alexandria, learned its use from the Arabs and, like them, employed it externally against parasites.

The Chinese have used it since 1075, by inunction and fumigation, for diseases of parasitic origin; and at a later period, for syphilis; but always with great caution.

From the Arabs the use of Mercury was learned by Theoderic, a Franciscan monk, subsequently bishop of Cervia, who wrote in the twelfth century and introduced it into practice.

It began to be used in England in the thirteenth century. Gilbert employed it for *malum mortuum*, a kind of eruption, and for lepra, by inunction. Guy de Chauliac introduced it into France.

In the fifteenth century, with the spread of syphilis, it came into general use; inunctions in this disease being first mentioned by Josef Gruenbeck, a priest and secretary of Emperor Maximilian I.; but long before this date it had been used for this purpose in Spain.

The first to give it internally was Joh. de Vigo, for the plague; while its internal use in syphilis was extended by Barbarossa, the pirate of Tunis and Algiers, who is said to have learned the composition and use of the pills which bear his name from a Hebrew physician.

At the beginning of the sixteenth century, both syphilis and the use of Mercury in treating it were general in Europe. Paracelsus understood the preparation of red precipitate, sublimate, calomel, and nitrate of Mercury. In the seventeenth century Mercury was greatly abused; and in our own day, the progress of chemistry has made known to us many new preparations of Mercury, which have been used by the allopaths against almost every form of disease.

As early as the fourteenth century, there were physicians who opposed the use of Mercury; and the contest on this subject has not yet ended. Hahnemann's discovery of the law of similars, and his comprehensive proving of Mercury, especially of the Merc. sol. prepared by himself, made us acquainted with one of our best polychrests; and this drug which in the hands of our opponents had done more harm than good, became a beneficent remedy.

II. PHYSICAL AND CHEMICAL PECULIARITIES.

[Limitation of space induces the omission of this part of Dr. Huber's paper; for the information it presents the reader is referred to works on chemistry.]

III. PHYSIOLOGICAL EFFECTS OF MERCURY AND ITS PREPARATIONS.

A. *Mercurius vivus.* *Inunctions on Animals.*

Overbeck experimented on six strong, healthy animals, more than six months old. The inunctions were made on the ab-

domen, thigh, nape, or back, on spots carefully shaved and protected afterwards by a firm bandage, to prevent the animal licking the spot and thus complicating the experiment by symptoms from internal poisoning. The experiments were generally made in the winter; the autopsies immediately after death or during the agony. The quantity of ointment used at each application was, for cats, a scruple; for dogs, a scruple to a half drachm, or more for large dogs.

1. Inunction with Ung. cin. was made four days on a cat. From the second day there was loss of appetite, retention of stool and urine, until a few hours before death on the 5th day.

Autopsy: Stomach and duodenum full of dark masses (chiefly altered bile); ileum injected in spots and dark with bile pigment; in the rest of the alimentary canal light yellow masses; liver unchanged; gall-bladder full of grass-green bile; no change in bones; blood dark, thick fluid; globules of Mercury, $\frac{1}{50}$ ''' in the kidneys and intestine, fewer in the liver and blood, none in bones. Chemical analysis revealed the metal in almost all internal organs, also in the blood; most in the liver, gall-bladder and heart; none in feces and urine. No mention is made of the bones.

2. Inunction with Ung. hydrarg. oxidat. Three days on a cat. From the second day, loss of appetite; retention of stool and urine; death on the fourth day.

Autopsy: Injected places on the cheeks and paws; the seats of inunction red and inflamed; intestinal canal full of dark, almost blackish masses; inflammatory injection throughout the large intestine; blood dark, not otherwise altered; bones normal. Chemical analysis showed the presence of the metal in almost every organ; most in the feces and intestine; but none in the kidneys.

3. Inunction performed on a dog of medium size, daily from beginning of September to end of November, with a scruple of Ung. cin.; at least 12 ounces used in all. The dog showed the Mercurial cachexy in a high degree; excessive emaciation; falling out of hair; uncertain gait was observed after four weeks; the exhalations of the animal were, at last, intolerable.

Autopsy: Hair thin, much having fallen out; erythema of

thighs and abdomen, even on spots to which ointment had not been applied; scrotum covered with moist, sore spots; urethral blenorrhœa; cerebral vessels distended with dark blood; lower part of right lung œdematous; a very large, translucent fibrinous clot in the right thoracic cavity, the pleura not adhering; large, solid, translucent fibrinous clots in both ventricles as well as auricles of the heart, that of the right auricle extending far into the vena cava; stomach and intestine full of blackish green masses; mucous membrane spongy, in ridges, often of a slaty-gray color (many *tænise* in the small intestine); capillary injection around the glands in the lower colon and rectum, but no ulceration perceptible; liver large, dark and full of blood, but the microscope shows no change in the constituents of the parenchyma; renal epithelium filled with fat; blood very dark and thick, almost like pitch, easily coagulating and forming a thick buffy coat; arterial blood bright red; mesenteric vessels full of bright blood; osseous system normal; globules of quicksilver found nowhere, except in the seats of inoculation; not even in the blood. Chemical analysis revealed the metal only in the greenish-black fecal masses; neither blood, urine, bones nor any organ showed a trace.

4. A dog of medium size treated with gray ointment from January 6th, 1858, died January 19th. About one ounce of ointment was used. At first loss of appetite and retention of urine; towards the last, profuse salivation. The exhalations of this, as of the other animals, intolerable. Considerable emaciation.

Autopsy: Twenty-four hours after death. Brain solid, compact, somewhat œdematous. Mouth: mucous membrane and gums bluish-gray and soft; erosions and dirty gray ulcers on various parts; parotids swollen; fetor of mouth; fibrinous clots filling the right ventricle and auricle; in the lower lobes of both lungs, dark red, serous infiltrated spots, in sharp contrast with the bright-red gray color of the rest of the lung tissue; contents of the intestine dark; mucous membrane of stomach spongy and ridgy with slaty spots; serous and mucous membrane of small intestine hyperæmic: the follicles swollen; deep injection of large intestine; dark stripes in the rectum,

probably from Mercuric sulphide; liver large, full of blood; gall-bladder distended with grass-green bile; spleen small, not much altered. Kidneys: Cortical substance yellowish, epithelium filled with fat in molecules and in large drops; urinary bladder full; blood dark, very thick, partly coagulated, clots in the large vessels; osseous system normal; globules of Mercury most in the mucous membrane of the mouth, especially in the necrosed parts; also in the kidneys and their pelves; likewise in the feces, mixed with black particles of sulphide; and scantily, in the liver, in the flesh of the heart and in the brain; no trace of it in the bones.

5. A strong dog of medium size treated with a drachm of gray ointment daily three and a half months, from March 25th, 1858. Urethral catarrh appeared at once. Loss of appetite, pronounced marasmus, intolerably offensive exhalations, sluggish motions, and at last movement almost impossible, with profuse salivation. Urine undiminished, containing much albumen, sometimes bile, and, as in catarrh of the bladder, many mucous corpuscles and crystals of phosphate of ammonia and magnesia. Repeated electrolytic analysis of the urine gave doubtful traces of Mercury. The dog died July 5th, ten to twelve ounces of ointment having been used during a period of more than three months.

Autopsy: Twenty-four hours after death: extraordinary emaciation; hair mostly gone from abdomen; extensive erythema of skin of abdomen and inner side of thighs; large necrosed spots, forming ulcers as large as a thaler, with a dirty base on the parts of the thigh where incision was made the first six weeks. Eyes: Purulent conjunctivitis of both eyes; no trace of iritis. Mouth: Mucous membrane pale; around some teeth blackish. A gray, necrosed spot on each side near the upper bicuspid, and similar spots on the inside of the cheeks near the angle of the lips, as well as on other parts of cheek and gum. Left lung collapsed, anæmic; right lung behind and below infiltrated with serum, dark red, œdematous; cavities of the heart filled with thick, coagulated, black blood, and fibrinous clots hanging from the valves. (Blood of the veins and aorta contains also solid coagula.) Abdomen: Strikingly

anæmic; gall-bladder half full of light green bile; the microscope shows no change in the parenchyma and cells of the liver; spleen small, very anæmic; mucous membrane of stomach ridgy, presenting necrosed, blackish spots, round and as large as a lentil or a pea; little ulcers seated in the mucous glands. (The black spots were altered blood-extravasations; the whole intestinal mucous membrane in a catarrhal state.) A longish, dirty-gray, superficial ulcer in the duodenum, six lines long; dark fecal masses in the ileum; the vermiform process filled with hard fæces; large intestine empty, contracted; injected spots on its blue-gray mucous surface. Kidneys: Large, congested; epithelium and casts from the tubuli in the pelves; also globules of quicksilver as large as $\frac{1}{50}$ line; osseous system normal; no trace of inflammation, neither the long bones, sternum nor cranium showed, either in parenchyma or cavity, a trace of the metal, although it was found in the heart-clots, the kidneys, parotids and liver, and in the deep layers of the cutis of left thigh where inunction was made the first six weeks; none found by chemical analysis in the bones.

6. A dog of medium size; inunction on both thighs from Jan. 20th to Feb. 22d. After eight days, loss of appetite, then retention of stool and urine; later, inflammation and erosion of skin of thigh and adjacent part of abdomen, and severe urethral catarrh. Intolerable exhalations from the skin; general marasmus; no salivation. Died Feb. 22d.

Autopsy: Right eye: Purulent conjunctivitis; mouth normal; brain firm, solid, somewhat œdematous; liver normal; gall-bladder full of green bile. Kidneys: Pyramids dark red; epithelium not infiltrated with fat; intestinal canal full of dark green masses, in the upper part fluid, in the lower large intestine solid scybala. The mucous and serous membranes of the middle and lower large intestine showed so great vascular injection as to leave no doubt of enteritis mucosa; no intestinal ulcers; no fibrinous clots, though the fibrin soon coagulated after flowing out, forming a thick, buffy coat. Osseous system normal; no globules of Mercury to be found; traces of it on chemical analysis in urine and bones.

7. Inunction in a small black dog daily, from Nov. 9th to

26th, 1859, when he died. No bandage on the points of inunction; he could lick them. Copious salivation, appetite lost on the 8th day; no retention of urine or stool.

Autopsy: During the agony, buccal mucous membrane of gum and fauces deep red with dark necrosed spots; the inflammation extending into the œsophagus. Liver comparatively congested; gall-bladder full of green bile; intestinal canal contracted; green bile in the upper part of small intestine; the lower part coated with a dark mucus (bile with Mercuric sulphide); some stripes of injection; the whole large intestine covered with injected spots under the greenish-black coat of feces. Blood thick, fluid, coagulating in five minutes. Signs of general anæmia; lungs, heart, spleen, blood-vessels, uncommonly empty of blood; no change in osseous system; no trace of Mercury on chemical examination. The early death of this animal by enteritis mucosa and its sequelæ was due to, or hastened by, his having licked the salve.

B. Inunctions on Man.

1. Basedow observed after mercurial inunction for internal, non-syphilitic disease: iritis, salivation, angina with profuse mucous secretion, horrid taste and burning in the mouth, insatiable thirst, painful dysentery for eleven days, drawing pain and tenderness in the tibia, œdema of feet. (*Hufeland's Journal*, 1838.)

2. Læwenhardt observed profuse salivation with swelling of the cheeks and maxillary and parotid glands; drawing tenderness and swelling of the gums; the tongue thickly coated yellow-white, its margins bearing the impress of the teeth; metallic taste, mercurial odor from the mouth, colic, frequent desire for stool, bilious diarrhœa, discharge of yellow-green matter with blood-clots, painful stools of blood and mucus, diuresis, large quantities of clear urine containing much albumen being passed. (*Læwenhardt, Beobachtungen und Erfahrungen aus dem Gebiete der pract. Arznei- und Wund-Arzneikunst*, 1838.)

3. Rust observed noma as a result of excessive mercurial inunction in a woman sixty-three years old.

4. In a young woman with a delicate skin, after applying

ung. hydrar. cin., for two days to the epigastrium, appeared an erythema, extending from the epigastrium over the whole thorax and abdomen. There was violent itching, the skin was deep-red, burning and sore. Next day the red surface was covered with little vesicles as large as a poppy-seed and full of purulent lymph. The eruption desquamated within seven days. It was accompanied by fever. (*Knorre. Allg. Hom. Zeit.* 19, 238.)

5. In a feeble girl of thirteen, not yet menstruating, of scrofulous habit, subject from childhood to glandular swellings, ophthalmia and cutaneous eruptions, especially on head and extremities, mercurial inunction was used to resolve the swollen glands. After applying about one and a half drachms of ointment to the sides of the neck and inside of the arm during eight days, these places became fiery red, and an itching eruption covered them and the entire chest and upper extremities; small and larger yellow vesicles on a dark-red base discharged a sticky yellow fluid and formed little confluent ulcers; thick yellow-brown scabs formed, under which the formation of the honey-like secretion continued, the acridity of which, with the rubbing and scratching, caused the eruption to extend until, on the sixth day, it covered most of the face, throat, chest and upper extremities, looking like vesicular erysipelas, at the same time general illness, with frequent, rather contracted pulse, restlessness, insomnia, etc.; after five days more, the upper half of the body was covered with fine yellow scabs; the eyes could not open and wept continually; the patient was delirious, had a dry, white tongue, subsultus, and an extremely frequent, small pulse. She died on the 24th day after beginning the inunction, and the 17th from the appearance of the eruption. (*Læwenhardt, loc. cit.*)

6. A man of twenty-six, in good health, used gray ointment to remove pediculi pubis. On the sixth day the whole abdomen was covered with a smooth, purple eruption, with here and there little white yellow vesicles; and three days later larger vesicles full of yellow lymph, which were soon covered with yellow-brown scabs, severe fever, accelerated, full pulse, white tongue, red urine, thirst, loss of appetite, constipation,

ischuria on the tenth day. The eruption had extended to the thorax and lower extremities; the discharge from the ulcers on the abdomen had formed a continuous scab, from cracks in which viscid lymph exuded. Occasional delirium. The eleventh day the eruption had covered the chest and upper extremities. The general symptoms gradually assumed a typhoid character; the sensorium was disturbed; the patient somnolent, delirious even by day; the extremities in constant motion; a sharp question would fix his attention for a moment; he would reply correctly and then relapse into delirium; death. (*Ibid.*)

7, 8, 9. In Jan., 1869, W. K., T. K., and Th. K., were found in the morning dead in bed; they were quite well the day before, on which a quack anointed their entire bodies with a salve for the itch. The results of autopsy were the same in all three cases.

The integument was dark violet-red in many places; on the hands, feet, chest, abdomen and back were some brown dried spots as large as lentils or peas; the morbidly changed habitat of the acarus.

The teeth were covered with yellow tartar, the gums slaty-gray, bluish, swollen and receded from the neck of the teeth; the mucous membrane of the lips swollen, bluish and denuded of epithelium; an intolerable odor from the mouth.

The dura mater and sinuses were full of dark fluid blood; the pia mater very hyperæmic. The cerebrum and cerebellum congested throughout with dark fluid blood, so that they were dark red, exhibiting on section many blood-points; some fluid blood at the base of the cranium. Congestion of thyroid body and of mucous membrane of larynx and trachea. Both lungs slightly adherent to the costal pleura, much congested, of a dark, livid color and exuding on section a quantity of dark, fluid blood. The liver and spleen hyperæmic and dark. The stomach greatly distended; being reserved for judicial chemical examination, it was not opened at this time. No morbid change in the intestine. Both kidneys congested; the bladder full. Death seemed to have resulted suddenly from cerebral and pulmonary apoplexy. Metallic mercury was found in

all the organs examined as well as in the salve. (Hirschel, *Zeitschr. f. hom. Klinik*, 19, 96.)

10. A woman, æt. 36, had three weeks before, on three successive days, rubbed a little mercurial ointment upon the groins and hemorrhoids and the next day exposed herself to cold and wet; since when she had pain in the groin, heat and dryness of the body, face and eyelids; and swelling and inflammation of the integument. Alternating cold and heat, lassitude, thirst, loss of appetite and sleep. After fourteen days a scarlet eruption, with offensive exudation on the inner side of arms and limbs. It desquamated in a few days. On the twenty-ninth day, many symptoms had improved; considerable œdema of lower extremities; tongue clean, stool normal. Recovery. (*Ed. Med. and Surg. Journ.*, 1865.)

11. A somewhat similar case ending fatally on the 31st day. (*Ed. Med. and Surg. Journ.*, 1865.)

12, 13. Two women applied ointment on account of itch. The marked and persistent effects were trembling and subsultus, emaciation and cramps. Recovery in about one year. (*Archives gen. de Med.*, 1825.)

14. A woman, æt. 28, previously healthy, used mercurial inunction for a severe and obstinate neuralgia dentalis. On the fourteenth day it was suspended on account of trembling of limbs, which lasted two months. (*Ibid.*)

15. A man, æt. 26, after using mercurial ointment four days, had swelling of gums and tongue; soon ulcers formed in the mouth. The maxillary glands swelled and were very painful; there was copious salivation and mercurial odor. Recovery. (*Arch. gen. de Med.*, Vol. 68.)

16. An employé of Hospital La Pitié, who had charge of the venereal patients, had, without known cause, swelling of gums and ulceration in back part of mouth. His physician pronounced it syphilitic and prescribed Mercury, which the patient, knowing he had no syphilitic taint, declined. The symptoms continued until he gave up the care of the syphilitic patients (who were treated with mercurial ointment). (*Arch. gen. de Med.*, Vol. 12.)

17. A maid-servant, æt. 28, with sound teeth and gums, got,

apparently from cold, an inguinal bubo, to which she applied mercurial ointment, keeping her bed for several days, only her nose and forehead uncovered. The third day high fever, copious sweat, fetor of breath; parotids swollen and tender. Could hardly open the mouth, within which were gangrenous ulcers; fetid, red discharge from mouth.

ACTION OF MERCURIAL VAPOR.

18. A gilder worked all day in a large but low and ill-ventilated room, which was also the family bed-room. He got many ulcers in the mouth, fetid breath, and terrible pain on attempting to speak or swallow. These symptoms abated when he ceased to work and recurred on resuming work. To them was soon added violent, general trembling, affecting first the hands, then the whole body. He had to sit in a chair; could not walk a step. He could neither speak, nor bring his hands to his mouth without striking himself; had to be fed, and swallowing was a spasmodic act liable to end in choking. At the end of six months the trembling had considerably abated, but the least noise or excitement would bring it on again. On resuming work, the trembling returned. It was remarked that when drunk, he could hold a glass steadily which he could not do when sober. (Ramazzini, *de morb. artif. Diatribe*.)

19. The wife of the last patient had similar symptoms, and a profuse salivation, which reduced her almost to a skeleton. Later she became asthmatic without cough or sputa. This lasted eighteen years; she could neither walk nor stoop without danger of suffocation. (Ramazzini.)

20. The man-of-war *Triumph*, in 1810, in the harbor of Cadiz, took from a Spanish vessel a number of cases, containing bladders filled with quicksilver. The bladders decayed and the metal ran out and penetrated to every part of the ship. Soon many of the crew had salivation; then a number had ulcers in the mouth and on the tongue, partial paralysis and gastric disturbances. Many and various endeavors to cleanse the ship were fruitless. The animals on board died. In many cases the buccal ulcer became gangrenous. The effect of the

vapor was peculiarly damaging to all who had any tendency to pulmonary disease, many of such developing and dying of consumption. A woman, confined to her bed by a fracture, lost all her teeth and had exfoliation of the maxillæ. (*Arch. gen. de Med.*, IV.)

21. A gilder, using amalgam and inhaling the vapor of Mercury, is said to have died in three hours in excruciating pain. (*Annales gen. des Sciences Phys.*, Part V.)

22. Two children, æt. 7 and 10, occupied a third story room which looked on a court, in which Mercury was sublimed. Soon a great mental disturbance was observed which gave reason to fear complete idiocy. Ollivier and Roger ascribed this effect to the impressible organism and tender age of the children. (*Annales d'Hygiène*, April, 1841.)

23. On account of the itch a man wore a girdle of cloth containing quicksilver. His mouth became affected as in No. 18.

24. A woman standing beside her husband in a bath-room as he anointed himself with mercurial ointment, got profuse salivation, and her fauces were covered with ulcers. (Fabric. von Hilden.)

25. A barometer-maker lived with his family in his work-room. The oldest of his five children was cachectic; the second died aged nine years, and the third aged three months, both of scrofula; the fourth, aged three, has scrofulous ophthalmia and mesenteric scrofula; the youngest, six months old, is very backward in its development, and has already caries of several ribs and the upper dorsal vertebrae. The mother looks cachectic, but is not sick at present. The father has suffered for years from trembling of the limbs, amounting at times to spasms; also periodically from nocturnal boring bone-pains. He has likewise periostitis in the middle of the tibia, and a papular eruption on the back. Swelling of the glands about the neck, dark redness of the mucous membrane of the fauces, diseased gums and bad teeth were observed in every member of the family. (J. Hermann, *Nachtheile*, etc.)

26. The family of a mirror-silverer in Fürth lived in the shop. The man and the house-dog were alike affected with

trembling of the limbs and salivation. The servant, who assisted in the silvering, was also affected. At first she had frequent and severe paroxysms of toothache, swelling of the gums and salivary glands, metallic taste, and transient pains in the joints of the limbs. Soon there ensued the most violent headaches, trembling of the limbs, hard swelling of the cervical and parotid glands, and profuse salivation; the teeth became black, the gums were loosened and bled, and there was almost entire immobility of the jaw. After several weeks medical treatment in Fürth the patient came to the clinic at Erlangen, Febr. 12, 1860. Her face was red, the cheeks, the region behind both ears and the submaxillary glands swollen, hard and painful, and she was unable to open her mouth, move the tongue, or speak. Very profuse salivation, abdomen swollen, constipation, extremities and eyelids constantly trembling, general emaciation. Pulse small, weak, and rapid. Patient very much depressed, constantly weeping. She has restless, sleepless nights, asthma, fever with night-sweats, and violent pains in the head. Some of the teeth fell out. An abscess formed in the cheek and opened into the mouth. There was necrosis of large pieces of the lower maxilla. Convalescence was established by the middle of August. At which time it was discovered that the patient was at the end of the eighth month of her pregnancy. At her full term (Sept. 11th) the woman had an easy labor and was delivered of an extremely small, female child, which, having plenty of milk, she nursed for several years. The puerperium was normal; and at the end of another month the woman was very fat and well. (*Kussmaul, Untersuchungen.*)

27. A couple gained their living by the sale of Mercury, which they obtained by expression from the leathern flasks, in which it is transported. They lived and slept in their work-room. Both were pale, weak, and emaciated; their gums were ulcerated, and their teeth loose, in consequence of long existing, though moderate, salivation. They could scarcely stand or speak intelligibly, and had lost the control of their hands, which were spasmodically affected, as soon as they attempted to grasp anything. They would not give up their occupation,

until the woman died of exhaustion; after which the man went to the hospital and recovered. (*Idem.*)

28. T. B., æt 43 yrs., had worked at mirror silvering since his 17th year, with the exception of 20 months. His wife had followed the same occupation almost as long a time. Neither had ever been salivated. Up to about three years ago they had not experienced the slightest injurious effect from their occupation, though they had neglected the most obvious precautions. Mercurial tremor now made its appearance in both about the same time; and in the man rapidly increased to the utmost intensity; but, after six weeks duration, diminished very greatly without ceasing entirely. After the acme of the first attack the man suffered about three months from frequent, and at times very serious, pulmonary hæmorrhages. He quitted his occupation for a year and a half, and then resumed it. In four months time the renewal of the deleterious influence upon his already impaired constitution brought on a return of the previous attacks in their full intensity. When Dr. Koch was consulted, Febr. 13th, 1854, he found him well nourished, with white skin, pale cheeks, scanty hair. He exhibited an extreme degree of mercurial tremor, continuing uninterruptedly, but with unequal intensity, being always worse after midnight; his nights had long been sleepless.

The mouth seemed free from any affection; the teeth good, tongue clean, digestion undisturbed; no increased thirst, and neither chill nor heat. The pulse could not be felt in consequence of the violent trembling; and for the same reason a physical examination of the heart and respiratory organs was found impracticable.

The condition remained unchanged until the 20th, when gastric disturbances appeared, owing to errors in diet on the previous day. He had now thick yellow fur on the tongue, anorexia and diarrhœa. On the 21st, movements much more violent, patient greatly excited, excessive thirst, heat in the head and vertigo. The diarrhœa had yielded to opium. On the 22d occurred rapid collapse with extremely profuse sweats, which colored the linen gray, as after mercurial inunctions, and continued till his death. During the night of the 24th,

25th, delirium ceased at daybreak. (Quinine),—the motor neurosis increasing in severity. Marked emaciation. On the 26th, notable subsidence of the movements, the patient feeling somewhat stronger. The tongue retains a thick, dirty brownish coat; is moist, with a prominent ovoid ulcer on its left border, the size of a groschen; cheesy exudation at the edge of the gum.

Profuse diarrhœa set in on the morning of the 27th, the abdomen was not sensitive to pressure; extreme thirst, temperature very high; movements less violent, at times seeming to subside. Now and then the patient had a short nap. (Potassic iodate, sulphur baths and opium clysters.) During the night, delirium. The diarrhœa ceased, but returned the next afternoon, unobserved by the patient. Decubitus commenced. The next day the diarrhœa continued, the movements became infrequent, and only of the head and upper extremities; the lower extremities lay quiet without loss of sensation. The patient was continually bathed in sweat, his thirst insatiable, tongue dry and cracked. Pulse thready, extremely frequent, consciousness complete, and the sensory organs unaffected. May 1st, toward evening rattling breathing. During the night transient delirium, entirely ceasing toward morning; and after daybreak no more movements. Death at 2 P. M.

Autopsy, 24 hours after death. Cadaveric rigidity, slight; suggillations, slight; only on the most dependent parts. Vessels of the pia mater slightly injected, containing very numerous air-bubbles, brain very firm, only a few watery blood points on the cut surface, the white portion dull, bluish-white. Lungs collapsed, movable. On the left side a reddish foam exudes from the cut surface upon pressure, the same spontaneously on the right side. Bronchial mucous membrane slightly injected in spots. Heart relaxed, endocardium thin, transparent, as also the valves; the endocardium in the right heart stained a dark blood-red. Only the ventricles contained blood; which was thick, fluid, blackish and red, with a large quantity of fat, in the form of small drops, on its surface. In both ventricles the blood was made foamy by numerous air-bubbles. Diaphragm pressed strongly upward. Transverse colon very

tympanitic. Dark foamy blood flowed from both large and small vessels, at the cut surface of the liver; and the same was the case with the kidneys. No noticeable change in the intestinal mucous membrane. (*Idem.*)

29. Another case of tremor mercurialis may be cited, in a female barometer-maker. She was of cachectic aspect, had small, dirty white ulcers on the lips, bleeding easily, and having a somewhat elevated livid edge; increased secretion of saliva, and occasional diarrhœa. Of this case we find the following autopsy:

Some suggillation, rigor mortis. Muscular tissue dark colored. Gray matter of brain and spinal cord notably dark, moderately congested. An extravasation of blood the size of the palm in the submuscular tissue of the right thorax. Lungs somewhat œdematous in spots. Hypostasis posteriorly and below on the right side. Blood and a few fibrinous clots in the heart. Mucous membrane of the ascending colon softened and somewhat swollen. Solitary glands also swollen. Mucous membrane of the sigmoid flexure and rectum excoriated in spots; submucous connective tissue infiltrated with serum; vaginal portion of uterus red and swollen; uterus distended with venous blood. (*Idem.*)

30. A woman, 38 years old, was occupied for five years at barometer-making. For a year past she has suffered from increasing trembling, which became suddenly violent, after spilling some heated mercury on the floor of the room, in which she slept. She was admitted to the hospital April 7th, 1856, in the following condition:

Great emaciation; skin pale; eyes sunken, with very dark rims; gums spongy; general trembling, with shuddering, passing at times into the most violent convulsions, sufficient to throw her out of bed. In such paroxysms she cries out, but does not lose consciousness entirely. Bandaging the body and limbs firmly quiets and relieves her. Pulse 84. Sleeplessness for a long time past. Appetite good. Thoracic organs normal. (Potassic iod., Opium at evening.)

April 9.—Speech quite unintelligible; mental disturbance;

disconnected muttering. She must remain bandaged. (Moschus.)

April 10 to 12.—The paroxysms decidedly diminished in frequency and intensity. On the 13th, no attack; trembling of the head also moderate. No Mercury in the urine in spite of the Jodine administered. (Ferrum.)

April 14.—Sleeplessness; perplexity of mind.

April 20.—Convulsive paroxysms again. (Moschus.)

April 26.—Instead of the convulsions, paralysis of the extremities, except the left arm. Subsequently the mobility of the right arm was recovered, but the paralysis of the lower extremities remained. The electric excitability of the muscles was unchanged.

In May.—Decubitus, diarrhœa, dysentery, persistent sleeplessness and restlessness; imbecility.

June 11.—Death.

Autopsy: Suggillation; substance of brain and spinal cord very soft; lungs dry, anemic. Fluid and loosely clotted blood, with a few fibrinous clots in the right side of heart. Thin, fluid, yellow bile in the gall-bladder. Dysenteric process in colon.

Chemical examination of the brain showed a faint trace only of Mercury. (*Idem.*)

31. C. R., æt. 55, mirror-silverer, had worked at his trade for twenty years; got tremor mercurialis; gave up his trade and did not follow it for eight years. The tremor recurred periodically. At last he died of exudative meningitis cerebri.

Autopsy: Dura and pia mater adherent, and thickened anteriorly. Black pigment in the lungs; liver normal; spleen soft. Much loose fat. (*Idem.*)

32. B. R., æt. 34, wife of a day laborer, worked at mirror-silvering from 1842 to 1847, then changed to house and field-work, and returned to silvering from 1851 to 1857, from six to nine months at a time. For the past four years she has not been employed in quicksilver work. While silvering she repeatedly had stomatitis, salivation and ulcers in the mouth. She also suffered much with vertigo, violent headache, weakness of lower extremities and great irritability. When she

quitted her occupation, in 1857, she was pregnant and suffered much from headache, vertigo, eructations and nausea, for which she was purged with pills containing calomel. Three living children are healthy; one died of scrofulosis, æt. 7, another at a year old, and a third at six months, of intestinal catarrh. She had one abortion at four months. Once while silvering she had menorrhagia for ten weeks.

At the end of December, 1860, she took cold, while at work in a cellar, and had to keep her bed. She had fever, and cough with hoarseness, severe headache, described as boring and confined to the frontal region; profuse salivation, nausea and violent vomiting. She was now admitted to the hospital in the following condition:

Well nourished, fleshy, of medium height and pale aspect, with both pupils somewhat dilated and sluggish. Pulse quiet, carotid impulse weak, alike on the two sides. Tongue somewhat coated; teeth for the most part carious or wanting; gums atrophied. Slight chronic angina. On the front of the velum and in the cheeks a superficial whitish scar. Except a somewhat extended splenic dullness, a careful investigation disclosed no further objective morbid symptoms. Pregnant.

She kept her bed, tied up her head firmly and vomited frequently (especially early in the morning) mucous, bilious masses and food. Vertigo and vomiting ensued upon rising up suddenly or stooping. Considerable salivation; appetite poor; constipation.

On the 6th of February the symptoms began to abate, and by the end of the month the salivation, which was most persistent, had also ceased. (*Ibid.*)

33. M. M., æt. 24, silvered seven years until December, 1859. In the fall of 1853 was taken with tremor, which lasted several months, and was accompanied by typhoid symptoms. No relief was sought until one day, when she fell in the street with vertigo. She had violent pains in the head, flickering before the eyes, roaring in the ears, and delirium. She suffered afterwards from general weakness and catarrh. Is said, in her nocturnal delirium, to have destroyed a stove, that her memory and judgment were enfeebled; that in spite of great

sleepiness she had either not slept at all, or imperfectly with bad dreams. Her appetite was good, thirst great, and there was constipation and tearing pains in the limbs.

September, 1856.—Headache, general lassitude and diarrhoea.

April, 1858.—Subacute bronchial catarrh.

December, 1859.—Stomatitis and tremor.

October, 1860.—Blooming, well-nourished girl with well-developed mammae; her health disturbed only by frequent toothache; some teeth carious. (*Idem.*)

34. M. D., æt. 38, married, worked at mirror-silvering from her fifteenth to her thirtieth year; then polished awhile, and returned afterward to silvering.

May, 1842.—Headache, nausea, tremor, tongue coated, gums bleeding readily, menses scanty.

September, 1844.—Chlorosis; amenorrhœa for 18 months; palpitation; lassitude; anorexia; costiveness.

August, 1845.—Erysipelas of the forearm.

July, 1848.—Tremor for six months, so that she could not drink, though she could eat, without assistance. Stammering; attacks of vertigo for three months. Moderate salivation; very slight trouble in the mouth. Falling off of the hair.

1849.—Varioloid. In the fall pregnant; albuminuria; considerable hydrops. Cure. In the fall of 1860 we find a small, delicately organized woman, tolerably well-nourished. Feels well; slight trembling of the hands, when she spreads out her fingers. Hair rather thin. The most of her teeth are gone; the four lower incisors are loose, and the gums have receded, leaving them exposed down to the roots. Gums and alveoli are for the most part atrophied. Slight chronic angina. Copious salivation. Struma. Cervical lymphatics somewhat swollen and indurated. Chronic conjunctivitis, with a fine pink vascular circle at the edge of cornea and sclerotica. (*Idem.*)

35. H. R., æt. 47, married; in a mirror-factory for twenty-one years, at first as a silverer, for the last ten years as a foil-beater. He frequently suffered with stomatitis, angina mercurialis, with ulceration and profuse salivation. In November, 1838, he is entered upon the hospital register with hydrargyrosis; in May, 1840, with pains in the head and stomach.

Four times the tremor attained such an intensity that he had to be fed. During the severe attacks of tremor he was greatly troubled with sleeplessness, restlessness, weakness of memory, and impaired judgment. The weakness of memory remained for a long time afterward. The headache was slight, but there was great roaring in the ears, much vertigo, and cloudy vision. Tearing pains in the extremities, especially the upper; great weakness in the lower, so that he had to be led. Extreme emaciation. The hair fell out, but came in again. Appetite bad, and he suffered also with diarrhoea and palpitation.

As long as he worked at his trade he was frequently troubled with an eruption on the back, according to his description, an eczema. He had no eruption before nor after that time. The eruption came in the form of patches of vesicles, which itched severely and soon exuded moisture. He suffered much from tightness in chest, anxiety and bad dreams.

Sept. 1860. Chronic copper-colored angina, with considerable swelling of the faucial mucous membrane, without ulcers or scars. Pain in swallowing with much scratching in the throat. On the mucous membrane of the cheeks, flat scars and thickening of the epithelium. Teeth partly carious, partly gone; many, as he said, having got loose and fallen out, without becoming carious, while he was silvering. (*Idem.*)

36. M. Sch., æt. 31, unmarried, a silverer from her 14th to her 21st year, then got stomatitis, and after her cure went as a waitress into a mad-house. At the expiration of three years and a half she returned to her trade, and continued at it uninterruptedly for two years. Then she suffered severely from stomatitis and salivation. After being cured, she silvered again for two years, when she was taken with a frightful convulsive tremor. In the summer of 1858 she was in the hospital, and for 16 weeks at home, obliged to be fed, talking unintelligibly, falling if she attempted to walk, and troubled with severe attacks of vertigo. The tremor affected her head also, and prevented her sleep. Memory and judgment weakened.

Aug., 1860. Almost entirely recovered, not having worked with quicksilver since the summer of 1858; is well nourished, looks and feels well. Only something of the trembling is

aroused by emotional excitement. Good growth of hair. Gums bright red at the edges. The alveolar borders of the lower incisors somewhat atrophied ; but those teeth though no longer firm, are otherwise white and good, like all the rest, of which there was not one lost. Slight chronic angina.

In Sept., 1860, she returned to silvering in a small factory. In the November following, stomatitis, quickly cured by the use of *Kali chlor*.

After some weeks, continuing her work, stomatitis again, cough without expectoration ; stitching pains in various parts of the thorax ; headache, and slight fever. These all vanished after some days, when she returned to her occupation.

Feb. 19th, 1861. She was obliged to stop again. She had latterly become pale, rather gray, emaciated, and felt dull and depressed. The stomatitis had reappeared with tremor. Menstruation, previously regular, became irregular, very scanty, pale and lasting but a few hours. The appetite was good all the time she was at the quicksilver work ; the stool at times thin and frequent.

Febr. 21st, 1861. The patient, who looked well the previous fall, is now very much emaciated, and grayish white ; skin lax, muscles flabby. Many teeth have fallen out, others are carious or gray. Buccal mucous membrane red and swollen, with depressions corresponding to the remaining teeth, and covered with flat, readily bleeding ulcers. No salivation. Bad breath. Pain in mouth, especially in the lower jaw. Roof of mouth and faucial mucous membrane deep red. Glands about the lower jaw slightly swollen. Thorax in every respect well developed ; mamæ lax. Percussion shows normal heart and lung outlines, and an ample depression of the diaphragm in inspiration. Auscultation shows nothing abnormal. While the mechanism of respiration seems quite natural in quiet breathing, in deep breathing both the inspirations and expirations, instead of being each continuous, seemed to consist of 3 or 4 rapidly successive movements.

Abdomen presents nothing noticeable.

Microscopic examination of the blood shows no relative excess of white corpuscles. Pulse varies from 76 to 80 ; tem-

perature of skin normal. When at rest there is no tremor, but it comes with the slightest psychical excitation. A look or word causes the extremities to tremble; she is obliged to sit down, and the pulse is quickened. Subjective symptoms: general lassitude, heaviness of the lower extremities, excessive timidity and ill-humor; no headache, sleep good. Prescription: Kali chlor, as a gargle. Tepid baths, every other day.

Febr. 23. Patient complains of much chilliness and cough, with pains in left side and shoulder. Physical investigation negative. No expectoration, no fever, urine scanty, dark yellow, albuminous, sp. gr. 1016.

Febr. 24th Careful examination of tactile sense with the callipers shows decided diminution of sensibility.

Febr. 26th. Mouth nearly well. Still complains of cough, especially severe while in the bath. Urine abundant, 800-1000 C.C., pale yellow; sp. gr. 1014, albumen less.

March 1st. She feels stronger, less tremor; visual power undiminished.

Prescription: Tinct. ferri acet. 20 drops three times a day. 5300 C.C. of urine collected from Febr. 24th to March 2d tested by Schneider's electrolytic method, showed a large quantity of mercury.

March 4th. Improvement slow but decided. Albumen reduced to a trace. Urine 1500 C.C., pale yellow, sp. gr. 1019. In 1000 C.C. there are 16.5 grams of urea, and 1.9 grams sodium chloride.

March 5th to 7th, menstruation as usual.

March 7th. 1600 C.C. of dark yellow urine, free from albumen, sp. gr. 1018, feebly acid. In 1000 C.C. 17.5 grams urea.

March 9th, menstruation returned, and lasted until the 11th.

March 11th. 1200 C.C. urine, sp. gr. 1015, containing in 1000 C. C. 23 grams urea.

March 18th. Improvement in every respect, color of skin, nutrition, strength, morale; tremor less frequent and weaker. Discharged convalescent, 1350 C.C. of dark yellow, neutral urine, sp. gr. 1019 with no trace of albumen for 10 or 12 days. In 1000 C. C. 22 grams of urea. Constipation during the entire period. (*Idem.*)

37. Of the many cases of tuberculosis on record caused by Mercury we note the following: II. W., æt. 40, single, silverer from her 20th year till 2 years before her death, which occurred Dec. 20th, 1860. Her father died at 60, her mother at 59 years of age. Her only brother is 46 years old and healthy; a child of his, æt. 13 years, is said to be healthy.

In her youth she was always well, and did not have either palpitation or nosebleed.

She alternately silvered and polished for 18 years.

In March, 1840, she had gastrodynia, nausea, pain in cardia; had had eczema on the hands since the previous Christmas.

March, 1844. Peritonitis circumscripta.

Jan., 1846. Stomatitis merc., tremor artuum, gravida. Said she had never suffered from the more serious forms of mercurialism. She frequently had headache, anorexia, vomiting, pains in the stomach, and a very slight tremor, increased by emotion. But whenever these symptoms appeared she always quitted work, and within 4 weeks they usually vanished. The last two years of her life her occupation was sewing and working with pasteboard; yet in the winter of 1859-60 the cough and expectoration decidedly increased, with the addition, in the spring, of serious pains in the stomach; in the summer she went into the Nuremberg hospital, and November 16th, 1860, she entered the Erlangen hospital, where she died Dec. 25th, of phthisis tuberc.

Autopsy: The cerebral convolutions, especially in the region of the vertex, greatly atrophied. No tuberculosis of meninges or brain substance demonstrable; ventricles large. The brain of this medium sized, greatly emaciated and pale woman, weighed 2 lbs. 5 oz.

Many of the veins emptying into the longitudinal sinus were filled for an inch with firmly adhering fibrinous clots, and the adjacent brain was the seat of numerous capillary hæmorrhages. Mucous membrane of mouth and fauces very pale. Tuberculosis pulm. utriusque with large cavities. Ulcera tubercularis laryngis et epiglottidis. Tuberc. glandul. mesenteric. illi, jejuni, coli, peritonei, hepatis. Spleen very small, with an old wrinkled infarct, having its origin, perhaps, in a little excres-

cence on the mitral. Chronic gastric catarrh; kidneys slightly granular and atrophied; fatty degeneration of the supra-renal capsules; Mercury not to be detected chemically, either in the liver or the jaws with their remaining teeth and stumps. (*Idem.*)

38. T. B., male, æt. 56, for twenty-two years employed in quicksilver works, at first as silverer, latterly more as an overseer.

Aug., 1841.—Tearing pains in abdominal muscles.

May, 1842.—Suffered for six weeks with severe vertigo, coated tongue, vomiting of bile and food, constipation.

July, 1843.—Obstinate constipation.

Feb., 1845.—Congestio cerebri.

Dec., 1845.—B. showed an unusual haste in every movement: felt dull; tremor of hands and tongue; at times sudden twitching of the lower extremities, still he could walk and eat. Only the fear of falling obliged him to keep his bed. No fever, nor stomatitis, only a coated tongue. Appetite and digestion good; stool normal; feeling as of a skin on the hands; sleep bad. The attacks of vertigo worse at evening; when not in bed he would suddenly sink down with flickering before the eyes, and occasionally, but not always, loss of consciousness, lasting a few minutes. During these attacks he was very pale, and they were occasionally preceded by nausea and vomiting. The attacks of vertigo came also in bed.

In 1852, again tremor and attacks of vertigo, when his condition after great improvement was seriously aggravated by anxiety for a sick child. Memory and judgment seem not to have suffered. The periods of vertigo extended over two to three months, and did not recur after 1852.

Sept. 1860. B. trembles yet, cannot stand on one leg, but takes long walks. Any excitement makes the trembling violent; sleep bad; stomatitis and angina faucium chronica with a coppery color. (*Idem.*)

39. D. K., æt. 64, widow, silverer for some forty years; always continuing until incapacitated by tremor. On recovery she would return to silvering. At this time she suffered frequently with tremor, or tremor and vertigo; later with tabes nervosa. She would often when going home from work with

the others be seized as by some extraneous force and hurried along ten or twelve paces in a straight line, or else in circles, until, reeling, she would fall or grasp a tree and hold herself up by it. She was repeatedly confined to the bed exhibiting the tremor, unintelligible speech, and tendency to fall on trying to get up; observed in other cases. She was frequently delirious, both by day and night. In her latter years her memory and intelligence were greatly impaired. Her death resulted from catarrhus suffocativus. (*Idem.*)

40. C. G., æt. 22. Dec. 10th, 1845, silvered uninterruptedly for eighteen months, suffering since Whitsuntide with tremor and salivation. He continued his work, however, till eight weeks ago, when he was obliged to stop on account of the severity of the symptoms. Affection of the mouth moderate, tremor violent; speech stammering; at times stopping entirely.

Dec. 15.—Violent headache; salivation somewhat increased; slight metallic taste; burning in the eyelids; slight redness of conjunctiva, the right especially; tremor somewhat less; no fever.

Dec. 17.—Eye dim, but little reddened; face pale; salivation slight; the burning in the eyes had ceased.

Dec. 19.—Convalescent. (*Idem.*)

41. A young man returned from a journey with an inconsiderable itching of the skin, which he attributed to pediculi pubis. By the advice of an acquaintance he sewed a quill filled with Mercury into his drawers. Within twenty-four hours an eruption appeared in the genital region, and extended continuously, down the inside of the thighs to the legs, while on the abdomen and chest it appeared in isolated spots. It resembled a variety of urticaria, consisting of bright-red, flat, small, confluent pimples (wheals), with excessive itching. In two days it disappeared, the quill being still quite full of Mercury.

42. A man, æt. 46, came to the hospital in October, 1833. He said he had worked in a mirror factory since his eighth year, principally as a silverer. In this operation the workman dips his right hand into a vessel of Mercury, while with the left he holds the glass plate upon which the metal has to

be rubbed. Usually the mouth and nose are covered with a veil; but this man had never used one, as he thought that those who did derived no benefit from it. For thirty years he had been very healthy, suffering only occasionally with bleeding of the gums; a stitching, nipping pain in various parts of the body, and a more or less decided loss of power in the hands, always removed by the use of strong spirits. He was repeatedly salivated, and, upon admission to the hospital, nearly all his teeth were gone. A short time before he had felt tolerably well, only the right eye had become weaker, and the memory so affected that he could not remember the names of his nearest acquaintance. It was hard to give a name to the condition of this patient upon his reception.

The reporter (Stokes) saw that it was a spasm, not resembling tetanus, hydrophobia, or hysteria, but rather chorea. The head, arms and fingers, especially of the left side, were in incessant spasmodic motion. The corners of the mouth were retracted; the eyebrows wrinkled; the nostrils dilated. The sterno-mastoid, trapezius, scaleni, diaphragm and abdominal muscles were spasmodically affected. His speech was broken and indistinct, by reason of the hiccough accompanying the spasm of the diaphragm, and the constant tremor of the tongue. At times the spasms would cease; but any part which he attempted to move would immediately become affected. If he attempted to raise his foot, it began to tremble and fell down again. If he wanted to drink, instead of carrying the glass to his mouth, he put it to the ear, nose or forehead, so that his comrades laughingly said he could not find his mouth. If another held the glass, he could drink easily. A cold draught, the touch of a cold hand, and the unexpected entrance of anyone into his room instantly provoked spasms. The muscles of the left side were more affected than those of the right. Cerebral activity undiminished; the patient being always conscious, and endeavoring as accurately as possible to give the smallest details of his disease. Urine normal. Some pain upon pressure over the fourth and fifth dorsal vertebrae; the remaining portion of the spine not more sensitive than usual. Skin cold

and dry. Pulse quick, soft and small. Constipation easily relieved by purgatives.

Leeches were put over the sensitive place on the spine and a warm bath ordered; subsequently the patient got a purge followed by an opiate. After some days his condition was somewhat improved. On the left side, to be sure, the spasms continued, but in a less degree; on the right side the spasms of the voluntary muscles ceased, except of the scaleni, pectorales, intercostales and diaphragm. By narcotic inunctions in the spinal region, especially of ext. Bellad. the spasms were entirely subdued and the patient left the hospital entirely cured. (*W. Stokes, Lectures.*)

43. A countryman to protect himself in his travels from vermin and itch had for six years worn on his breast a small leather bag containing Mercury, which he refilled whenever it became empty. Breath very offensive; a bloody saliva streamed profusely from his mouth; blood constantly exuded from his tongue as from a sponge; it was much swollen and painful and, together with the roof of the mouth, beset with foul ulcers; similar ulcers entirely prevented swallowing. This earth colored, bloated patient had suffered from salivation for several weeks, but the hæmorrhage had only existed for 10 days. He had hectic and died in 48 hours.

44. A mirror silverer, æt. 55, was perfectly healthy during the first five years of his occupation; afterwards he was affected with a trembling of the hands, especially of the right, the legs being but little affected, the knee only a little weak. After two months rest this attack ceased and here turned to his occupation for six years, when the symptoms reappeared. He felt as if drunk, worse when excited; the eye appeared to suffer. At the end of 15 years he experienced a third attack; legs unsteady; considerable tremor of tongue; feels again as if drunk; fell unconscious while going to stool and passed the stool involuntarily; subsequently without call to stool this epileptoid attack recurred. Though the teeth were loose there was no salivation. For the rest, the patient was not excited, he had some appetite and was mentally undisturbed. At first

the condition was improved by tonics, but then succeeded weakness, coma, and death.

Autopsy: Everything normal; the cerebrum and cerebellum were throughout harder and firmer, and rather less white than usual.

45. A mechanic, by the breaking of a barometer tube, which he was attempting to clean, was exposed in a rather small room to the vapor of more than two lbs. of metallic mercury. He at once became faint and unconscious; recovering after the doors and windows had been opened; for some days after he experienced a general swelling of the body, which on subsiding left him with a trembling of the hands and complete paralysis of the right arm, which persisted in spite of every assistance of art (allopathic). Lobethal cured him entirely with China.

46. An operative in a mirror factory suffered with bone pains, which were especially severe at night without ceasing during the day. They were just like syphilitic bone pains, except that they were not confined so much to single localities, but affected all the limbs simultaneously.

47. L., a silversmith, æt. 55, well built, well proportioned chest, with a delicate fine skin; sweats easily; was always inclined to gout and has an habitual cough; good digestion with small appetite; takes his wine daily and not infrequently takes too much; is disposed to diarrhœa, and for years has had pains in the head and is inclined to melancholy. For years he had gilded the many silvery articles in his laboratory in the open air in a narrow court surrounded by high buildings which prevented the mercurial vapors from being carried off. In 1823 he got a tremor of the hands and feet, so that he could not write. Flowers of Sulphur and liver of Sulphur taken continuously, together with baths of Hep. sulph. alcal. overcame the condition as also a relapse which occurred in 1824. In the winter of 1824 to 1825 he frequently complained of pains in the limbs and abdominal muscles; of headache on rising in the morning, and of great depression, is pale, illhumored and without appetite; has great lassitude, fever, drawing pains in the right leg, headache, coated tongue, sweat, very acute pains

in the abdominal muscles, and a violent cough, generally loose, attended finally with severe pains in the chest. Venesection (!) seemed necessary, but on account of the existing weakness, leeches were applied. The leech bites continued to bleed for more than 24 hours, and the blood was very fluid. After taking Sal. ammoniac, Auric sulph., Digit., Ipec., Prussic acid, applying vesicants to the chest, etc., the thoracic symptoms subsided, but violent head pains reappeared, extending down into the cheeks; indifference with respect to his business, extreme weakness of memory, vertigo, eyes very dim with a dull expression; no more sweat or heat but a quickened and rather full pulse, decided weakness and complete anorexia. Four weeks had now elapsed and the disease had become chronic. Gradually occasional wandering of mind appeared; dry skin; no increased warmth of body; much thirst; no appetite at all; heart beating; full, trembling, frequent pulse; stupid, constant inclination to lie and sleep.

Leeches were applied to the temples and behind the ears, ice to the head, inunctions of Tart. emet. ointment to the nape, and as no pustules appeared, a vesicatory was applied; internally, Prussic acid and subsequently Haller's acid in large doses,—all without result. The emaciation increased, the strength diminished, the gums bled excessively, a persistent comatose condition set in, with entire loss of consciousness, uninterrupted low muttering delirium, bad odor from the mouth and over the whole body. Wine and China were not tolerated. Camphor, Musk, Sal succini answered better, but he died in the eighth week with apoplectic symptoms, hemiplegia, involving the tongue, and unconscious voiding of the excrements.

Autopsy: Three hours after death. On both hemispheres, especially the left posteriorly, a bloody covering, one-third inch thick, containing white streaks of coagulated lymph, as found in the blood of subinflammatory conditions after standing some time; this extended, following the pia mater as far as and over the tentorium. Cerebellum healthy. A considerable amount of fluid in the left lateral ventricle. This bloody

covering extended over the greater portion of the cerebrum. (Kopp's *Denkw. aus der Aerztl. Praxis*, 3. B., 1836.)

48. A goldsmith in Münster, gradually poisoned by mercurial vapor, became pale and weak, very thin and daily more cachectic. Aphthæ in mouth and fauces, especially on the edge of the tongue, were at first removed by applications of borax and honey, with tinct. of myrrh.; but returning after awhile were left to themselves.

In August, 1811, while, with unusually high atmospheric temperature, 27° R. (92.75° F.), typhoid fever and dysentery were prevalent in Münster, a profuse epistaxis, uncontrolled by external and internal treatment, set in. The mercurial disease, too, did not abate, but there appeared daily new hæmorrhages, from the entire buccal surface, from the eyelids and face, especially the forehead, in drops, constituting a true bloody sweat; also from the urinary tract; the urine being at first reddish, subsequently blackish. Pulse small, feeble, not rapid. More than a pound of blood was lost daily. He had petechiæ before the hæmorrhage, upon the abdomen and lower extremities, small round spots of a dark red to black color. Under the incessant bleeding, with entire want of appetite, he steadily sank and died on the twelfth day after the first hæmorrhages. (*Hufeland's Journal*, B. 45, 1817.)

49. On May 3d, 1845, about 7 P.M., an apparently very feeble man, æt. 64, who swept out a mirror-factory, burned half of a tub used for holding the Mercury for plating. He said there was no Mercury left in it; but, while burning, a mercurial vapor was diffused from the hot stove, which had an imperfect pipe and a closed place on top, not air-tight. The odor the patient compared to that of his saliva. The room was small, with but one window and two beds, and contained at the time five persons (three girls, the youngest 14 months old, beside the man and his wife).

On the 8th appeared swelling of the buccal mucous membrane, small pimples which broke, and salivation. On the 10th, he entered the hospital in the following condition:

The mucous membrane on the cheeks swollen and red; and on them, as well as on the gums and velum, white patches,

which can be removed with the finger without leaving any ulceration beneath. The gums thick, red and covered on their free border with a dirty whitish-yellow coating, extending into the sockets of the teeth. On removing this, it is perceived that the gum between the teeth is fungous and bleeding, but not ulcerated. The mucous membrane of the lower lip, where it touches the teeth, especially on the left side, is covered with large yellow-white patches, extending up to the middle of the cheek. These are not removable by the finger, but the surface bleeds easily. Tongue very thick, especially on the left side, and is moved with difficulty; has a dirty yellow-white coating, and on the edges some gray patches. Submaxillary glands slightly swollen, all these parts painful. Profuse salivation. Breath has a very strong mercurial odor. Mastication impossible: speech difficult; dysphagia. General condition unaltered.

On the 11th, oat-meal and honey. Gargle of 20 grams alum to 1 litre of water. On the 14th and 15th the patches extend from the lower lip to the cheeks, and those on the edges of the tongue have a red areola. On the 17th, by removal of the former with a linen rag, the mucous membrane is laid bare, and is found uneven and painful, and a quantity of blood is left on the cloth. The pains produced thereby are very acute.

On the 24th the gray spots are gone, leaving red spots. On right cheek, near the commissure, is a large gray-red spot, the size of a 50-centime piece. The red points are elevations, true granulations, sure evidence of ulceration. The gray points are remains of the repeatedly mentioned gray spots. The cure is almost complete, but the man now has a pneumonia already in the third stage, which the author (probably correctly) attributes to the mercurial poisoning, and of which he died on the 27th. (*Archiv. Gen'l. de Med.* 68 B.)

50. The wife of No. 49, æt. 56, the morning after burning the tub, felt a stiffness of all the limbs, with the mucous membrane of the cheeks painfully swollen. Tongue swollen, moving with difficulty; mastication painful, impossible indeed; speech impaired; and by Wednesday, March 5th, salivation set in. Admitted on the 13th, in the following condition:

Gums red, swollen, covered with soft patches, easily removable without leaving ulcers. On the left side, under the second molar, a red spot covered with a white skin; gum very loose and covered with a dirty, whitish-yellow coating; teeth very loose; mucous membrane of cheeks swollen, especially on the right side, where was a red spot with a white skin, also some of this skin on the velum. On the mucous membrane of lower lip, which is slightly thickened, white spots with a red border. Tongue very thick, especially on the right side, with gray spots on the edges, showing the impression of the teeth; movements difficult; coating dirty yellow, characteristic of Mercury. Submaxillary glands slightly swollen; all these parts painful; salivation; mercurial factor of breath; speech obstructed; dysphagia. (She can only swallow bouillon.)

March 14th.—In place of the white surface on the lower lip, one consisting of small red prominences, with a faint gray color of the intervening surface. Granulations plainly protruding above the healthy mucous membrane and bleeding at the slightest touch.

On the 19th, the same condition of the edges of the tongue. On the 24th, she left the hospital convalescent.

The treatment consisted simply of mucilaginous drinks and gargles containing chlorine. (*Idem.*)

51. The daughter of the two preceding, æt. 21, observed at the same time (March 4th), a stiffness of the limbs, with soreness of the gums and pain in chewing. On the 5th, salivation. On the 12th, entered the hospital in the following condition:

Gums red, swollen, covered with a delicate white membrane, loosened from the teeth; covered at the free edges with a gray-yellow covering, which extends to the sockets of the teeth. On the mucous membrane of the upper lip, near the right commissure, a very thick white patch with red areola. On the entire lower lip gray, thickish patches, with a red border; delicate white membrane on the thickened mucous surface of the cheeks, especially the right and on the velum. The tongue naturally thick, covered with a thin, dirty-yellow coat, and on its edges some gray spots; tonsils very much swollen, red, without patches; submaxillary glands slightly swollen; all these

parts painful; slight salivation; mercurial odor of breath; mastication impossible; deglutition easy; speech natural; general condition good. Powdered alum on the ulcers twice a day; alum gargles.

On the 22d, the patient left the hospital entirely well. She was the mother of a 14 months old child, previously mentioned, which, although equally exposed to the mercurial vapor, and nursed by the mother throughout her illness, remained perfectly well. (*Idem.*)

52. The second daughter, æt. 16, was also taken on the 4th of March, with a feeling of stiffness in the limbs, pimples and swelling in the mouth; on the 5th, salivation, and on the 11th, she presented the following condition:

Gums red, but without yellow coating on their free borders; teeth perfectly white and unchanged; tongue very greatly swollen, moving with difficulty, very painful, covered with a dirty whitish yellow coat, very red, showing the impress of the teeth, and with large gray patches on the edges. Almost the entire velum covered with a thin false membrane easily removed, and leaving no ulceration beneath. The mucous membrane of the cheeks shows in places thin white spots, except in the middle, where they are thick and not removable with the finger. Tonsils very large; submaxillary glands, especially the left, much swollen; all these parts very painful. Very profuse (almost the maximum degree of) salivation, with very penetrating mercurial odor. Voice unchanged. Tongue very thick, swollen, painful on motion and troublesome in talking. Dysphagia, anorexia. For the rest, respiration, digestion and general condition unchanged; but a rather frequent pulse, and on previous evening a little fever. Oaten grits, etc., and chlorine gargles.

13th.—The patches in the cheeks surrounded with a red border.

14th.—That on the right cheek disappeared, leaving a gray-red prominent surface (granulations and the remains of the gray pseudo-membrane).

15th.—Granulations on the left cheek (where the patches were) and still more plainly on the right.

On the 23d, the patches on the edge of the tongue began to granulate, and on the 25th the anterior third of the ulcers was cicatrized.

28th.—On the right cheek a granulating surface, six mm. in circumference, surrounded with red mucous membrane. The ulcer on the left border of the tongue cicatrized in a depressed white line; that on the right showed a granulating surface only three mm. broad, prominent above a surrounding cicatrization, which in places spreads across it, dividing it into islands. In this condition the patient left the hospital May 29th. (*Arch. gen. de Med.*, 68 B.)

53. A man, æt. 40, addicted to the use of wine and tobacco, worked some years in the India mines, and was taken while there with a dry cough and difficult respiration; stitching pains in various parts of the chest, lassitude, etc. He continued in this condition for months, finding no relief from medical treatment and died at last of suffocation in a fit of coughing.

Autopsy: Lungs contracted; pale; universally adherent to the adjacent parts, by means of fibrous bands almost tendinous in character. The substance of the lungs was marbled by numerous black linseed-shaped spots, partly discrete, partly confluent. Except an unusual paleness of the liver, nothing abnormal was found in the other organs. (*Scopoli, de Hydrarg. indriensi tentam*, 1761.)

54. Mercurial poisoning of forty-three patients sick of various diseases, in a ward of a hospital at Rochefort, was produced by the beds having been exposed to mercurial vapors, on account of vermin, though they were left in the air for three weeks afterward. The patients who were placed in them were completely salivated; within two days had ulcerated gums, swollen lips and salivary glands; loosened teeth, earache and headache. The mercurialism had no noteworthy effect upon the original disease of the affected individuals. Upon removing the patients from the ward and purifying the beds, it was found that the vermin had not been entirely exterminated. (*Canstatt's Jahrb. f. 1848, aus Journ. de Bordeaux.*)

55. A female, mirror silverer, æt. 51, who had not worked

for a year, from a condition of simple tremor, passed gradually into a state of general convulsion devoid of all rhythm. Every part jerked independently, both in time and direction, and the convulsions continued day and night. The urine was passed into the bed, though consciousness was unclouded up to the last night. There were pains here and there, alternately, in various parts of the body, only ameliorated by leeches. In the death agony the convulsions lasted longest at the head.

Autopsy: Brain somewhat collapsed; the dura mater bluish red, its veins somewhat injected. Substance of brain rather more consistent than usual. Spinal dura mater slightly injected, with bony scales perceptible on it; but the spinal marrow itself normal. Lungs hepatized and filled with black blood. Capsule of spleen wrinkled; right kidney hypertrophied; left atrophied; the pyramids scarcely recognizable. A slight quantity of Mercury was detected in the liver; the cerebrum and cerebellum gave a doubtful result; and there was none found in the other organs. (*Canstatt's Jahrb. f. 1850, aus Jenaische Ann., B. 2, S. 237.*)

56. Two workers in bronze were treated for hydrargyrosis at Prof. Raimann's clinic during the years 1852-'54. In both were observed a pale, sallow look, muscular relaxation, tremor and wandering pains. The remaining symptoms in the two were different.

In the one were many ulcers in the mouth, with a dirty grayish-white base, readily bleeding, and secreting a thin ichor; the gums spongy and partially disorganized; the teeth discolored and loosened; salivation and offensive breath.

The other case exhibited only spongy gums and encrusted teeth; while the tremor was much more pronounced, and the course of the disease was attended with mental disturbance which appeared at night, and consisted of hallucinations and desire to run away. The patient in spite of the excessive tremor would leave the bed and room, but return at once upon special admonition. The first was cured in three weeks. The disease of the second was more obstinate, and resisted many remedial measures, but was finally cured under the use of

opiates, vapor and warm baths, sulphur preparations and Potassium iod. (*Canstatt's Jahrb. f.* 1855.)

57. Bassot reports the case of a mirror silverer in whom the inspired mercurial vapor produced a condition exactly resembling true chlorosis. The face and mucous membranes were quite pale, the nails were a dead white, like those of a corpse; eyes dull, watery; pulse small and quickened; thirst excessive; no appetite. Palpitation, dyspnœa, pains in head and stomach; œdema of lower limbs; general weakness; depression of spirits and *bruit* in the carotids. No stomatitis nor salivation. All these symptoms disappeared in four weeks under a generous diet and the use of ferruginous preparations. (*Canstatt's Jahrb. f.* 1852, *aus Gaz. Med. de Lyon* 1852, p. 6.)

C. Diseases of Workers in Mercury.

1. From the correspondence of *L'Union Med.* No. 116, we extract the following account of the diseases of workers in the mines of Almaden. Lopez de Arebado, for twenty-three years physician at the mines, says that native workmen seldom attain sixty years of age. During his long residence there, only twelve reached seventy years of age. Two became seventy-five years old, were healthy and only slightly affected by Mercury.

Like examples are, however, not to be found among the foreigners, who, from ignorance of the danger or indifference, take but little care of themselves; eat with unwashed hands and face, do not change their clothing before eating or going to bed, and, besides, are addicted to drink and every possible excess; hence they are much sooner and more violently affected with mercurialism.

Lopez de Arebado asserts that the effects are manifested in some as tremor only; in others as salivation alone. Intemperate, lean subjects, according to him, suffer more from the first; people with unhealthy fluids more from the second. Stout, sanguine people do not endure as long as lean, nervous ones. Those who have worked in the mines from youth up are less sensitive to the noxious influence, and are never so suddenly and violently affected as the new comers, who are frequently

rendered unable to work. All parts of the mines are not alike unhealthy. The lower galleries, containing the richest ore, and which are comparatively ill ventilated, seem to be most unhealthy. All kinds of the work, too, are not alike dangerous. The worst are breaking up the ore and driving the pumping engines. Those who work at the latter, suffer from pains in the limbs and thoracic inflammations. Those also who work outside the mines experience more or less the detrimental influence of the Mercury. The greatest sufferers of all, are those engaged in the distillation, as they are continually in an atmosphere filled with mercurial fumes. On the other hand, the residents of the city of Almaden, over which the wind frequently blows the furnace vapors, are entirely unaffected. It seems as if the Mercury must be precipitated before reaching the city. Animals, grazing in the pastures adjacent to the furnaces, very frequently exhibit mercurial tremor. The mules which drive the cinnabar mills are usually healthy, but a miner asserts that Mercury has been found in their bones.

2. Scopoli tells the following with respect to the workers in Idria. The tremor attains such a degree that those affected are unable to feed themselves or to stand. Their appetite is lost, the pulse becomes slower and weaker. Salivation appears with swelling of the salivary glands, and ulceration. (Those who are salivated are never or but seldom affected with tremor; those who are subject to toothache are more easily salivated.) The saliva is thick and yellowish, or blackish; subsequently, lassitude, weakness of limbs and sleepiness set in; then a bad breath, swelling of the gums; the teeth are left exposed, become loose and black. The inner surfaces of the cheeks, and, in bad cases, those of the lips even, are raised with white swellings. The saliva becomes offensive and copious, obliging the patient to spit frequently. Some are affected with pains in the teeth, jaws and head, worse at night. The surface of the tongue is a blackish color. Fauces frequently pale; appetite wanting or diminished; thirst violent; spirits sad. These attacks last six or seven days or longer, until, by the use of appropriate remedies or breathing the fresh air, they gradually pass off.

The cough of the operatives Scopoli attributes, in part to the stone dust in the air; in part to the sudden change of temperature, to which they are exposed: and in less degree to the inspired mercurial vapor. It is seldom dangerous, but frequent relapses may make the lungs so weak that hæmorrhages and phthisis may ensue. Those are especially subject to asthma who drink much wine. Besides the general symptoms of toxication mentioned with the salivation, the asthma is preceded by cough, spasmodic contraction of the chest, and a distressing sense of weight. The disease itself is attended with a constant, violent cough, with nocturnal exacerbation, restless sleep, frightful dreams and restlessness of the heated limbs. Nocturnal heat, dry fauces and deficient expectoration, distress the patients. As the disease advances the breathing becomes extremely difficult; the cough nearly suffocating, and stitching pains appear here and there in the chest. At this stage death is imminent and unavoidable. Dysentery usually appears in Idria at the beginning of August and lasts till the end of September. It chiefly affects children and delicate individuals, and is preceded by coldness, weariness, weakness, frequent stools, pains in the intestines and loss of appetite. The disease is attended with frequent cramps as if the intestines in the region of the navel were squeezed violently. Then follow slimy, generally bloody stools, offensive and weakening, with rapid and weak pulse, worse at night with heat. The distressing and painful pressing down in the intestines giving rise to frequent stools, is always present to such a degree that the patient, asked as to his condition, only replies that the entire contents of the abdomen are coming out. This lasts for eight, ten or even fifteen days, the pains becoming less, the stools less frequent, paler, and finally ceasing. Passing of wind per anum is a sign of returning health. In spring and fall the ill-nourished, weakly, bilious laborers of bad habits, are frequently attacked with intermittent fever, usually tertian, infrequently quartan, and occasionally anomalous in type. The more the drinking water is disturbed by frequent rains, the more numerous and severe are the fever cases. All complain of bitter taste, bad smelling eructations, with nausea

and inclination to vomit. The spring fever is usually mild and frequently ceases after the seventh paroxysm; but the fall fever continues obstinately until the blooming of the *Tussilago farfara*.

In children, toward the end of the paroxysms, especially in the spring, vesicles filled with thin serum appear all over the body, and disappear after a copious sweating. After long continuing fall fever and its relapses, hydrops frequently appears, often ending fatally. Some become icteric after the paroxysm. There is a general complaint of lumbricoides, which are detected by the following symptoms: Colic after meals; bad breath; pale face; a troublesome tickling in the œsophagus, with nausea and inclination to vomit and aversion to food. The worms frequently pass by the mouth or anus. The workers in Mercury are also affected with other diseases, such as are observed in other people; as rheumatism, hæmorrhage, phthisis, pains in the joints, diarrhœa, etc.

3. We will give here the results of the studies of T. Hermann, in regard to the diseases of the laborers in the quick-silver works at Idria.

The laborers are divided into three classes:

1. Those in the mines.
2. Those in the smelting works, and
3. Those employed in the preparation of cinnab.

Beside these, there is a class of which each member works every year in all three places. In the smelting works, where fifty-nine men are employed, each one remains only one month, as here the danger is greatest.

Of 516 laborers in 1856, there were sick from the action of Mercury:

1. Of the miners:	2. Of the smelters:
20 with dyspepsia.	15 with neuralgia.
15 " scrofulosis.	12 " anæmia.
10 " anæmia.	10 " mercurial gout.
10 " neuralgia.	4 " tremor mercurialis.
4 " mercurial gout.	
2 " tremor mercurialis.	
2 " caries.	

3. Of the cinnabar makers:

1 with ptyalism.

2 “ neuralgia.

By anæmia is meant the mercurial cachexia, which consists of general weakness, bad nutrition, earthy complexion and decided emaciation. The mercurial gout is shown by tearing in the limbs, joint pains, and especially by nocturnal bone pains. The local physician, Dr. Gorbeg, observed caries after preceding periostitis and otitis. Of 516 laborers in 1856, there were 122 sick. The mortality is also very great in spite of favorable climate and social conditions. Of 4,500, an average of 120 die annually; abortion and premature births are frequent.

Hermann found among 30 sick, whom he visited during his stay in Idria: two cases of tremor mercurialis; two of caries; one of kyphosis in consequence of softening of the vertebræ; one of periostitis and subsequent necrosis; five cases with osteocopic pains; one with chronic atrophy of the liver, with decided emaciation; one case with a papulous exanthem over the whole body and nocturnal bone pains; one with extensive kidney-shaped ulcers on the foot; one the perfect picture of phthisis laryngea, with visible erosions and ulcers on the posterior wall of the fauces; one with paralysis of left arm. The remaining cases were those of scrofula of children, an endemic complaint here. It is extremely interesting to note that two children of one family, born while the parents were working in the Jaly mines, were not scrofulous, while all the others of the same family born in Idria were scrofulous.

Of eighteen affected with hydrargyrosis we find three with ptyalism, angina and faucial ulcers. (A more or less intense redness of the roof of mouth and fauces, with relaxation and swelling of the mucous membrane was observed in almost all cases.) Six with dyspepsia; nine with gastralgia; one with jaundice; three with swelling and suppuration of glands; one with vomiting and diarrhœa; four with tremors; two with neuralgia; three with ischialgia; six with arthrorheuma (acute rheumatism); two with maculæ; two with squamous eruption; one with papular eruption; three with ulcers on the feet; three with dolores osteocopi; one with periostitis; four with caries;

one with necrosis in elbow joint; one with malacosis vertebralis; seven with anæmia; two with cachexia.

All the residents of Idria have more or less hepatic disorder. Intumescence of the liver, with a hyperæmia of carbonized blood and the resulting consequences, are endemic disorders there. Neuralgias are very frequent, under the form of gastralgia, ischialgia and neuralgia of the fifth pair of nerves. Osteocopic pains, periostitis, ostitis, exostosis, necrosis and caries are frequent. Tophi are seldom seen.

Macular, papular, vesicular and pustular eruptions as well as chronic kidney-shaped ulcers are met with.

On the mucous membranes we find angina with and without erosions and ulcers.

In the glandular system we see swelling, inflammation, supuration.

In the liver, intumescence with all its consequences on the one hand, and on the other, chronic atrophy.

4. Beside the observations of Hermann we place those of Keller, made in some mirror factories in Bohemia. The mirror silverers are not taken under 16 nor over 40 years of age, and are usually between 16 and 24. Married women are not employed on account of the danger of abortion. Eight hours a day is the working time, and after 14 days work they always have to stop from 8 to 14 days and often longer. They die early, seldom exceeding 50 years. Wounds heal slowly. Syphilis is extremely rare. All the employees are to be considered as more or less sick, according as they have been working a longer or shorter time. Even the children of those operatives who have been employed for a considerable length of time, look pale and rachitic, and have the scrofulous characteristics.

According to Dr. Klement, the new hands, within the first 14 days, get a thick dirty gray covering on the teeth, coppery redness and swelling of the gums and buccal mucous membrane. Subsequently excoriations appear on the inner surface of lips and gums, with moderate salivation, nasal catarrh with thin discharge, and frequently loss of smell and hoarseness. The excoriated places on the lips and cheeks develop into deep ulcers, with swollen eroded edges, and the tonsils as well as

the cervical glands swell. When such laborers return repeatedly to the same work, ulcers entirely similar are developed in the mucous membrane of the fauces, especially on the posterior wall (except the new hands, all the silverers had ulcers in the fauces). There appear tremor of the hands, at times also of the feet, nocturnal drawing pains in the head and extremities. The teeth finally become loose and fall out, especially the front teeth (the oldest hand had only 11 teeth in his mouth). Finally osseous enlargements occur, frequently on the tibia, less often on the head. These tophi, with swelling and sensitiveness of periosteum, are the cause of violent pains, especially at night, in the warmth of the bed, in cold damp weather, and in a thunder-storm, but particularly at the first snow fall.

At times also macular, papular and even squamous eruptions (these especially in older people) appear on the chest, back and hairy scalp; but these, except when they come on the head, are but little noticed by the people. These eruptions often appear suddenly, last only a few weeks and then disappear to return after awhile. All these last mentioned appearances do not come only in those who remain at work or have but recently left it, but are often developed in those who for years have had nothing to do with quicksilver. The serpiginous ulcers of the skin especially come almost wholly on such as have left mirror silvering for from 4 to 10 years. The nodes and tophi occurring under such circumstances do not go away. Falling off of the nails has not yet been observed in these workmen. Formerly abortions were common among mirror silverers, so that now married women are no longer employed, in this work especially. Even in the children of women formerly employed as silverers the features of anemia and scrofula have been generally observed, and are not to be ascribed to the poor dwellings and vegetable diet, as the children of the glass workers, otherwise living under the same conditions, are as a rule tolerably healthy.

It has been observed, that people who begin the work at an advanced age are much sooner and more affected than those who begin when young, finally that the more severe forms of hydrargyrosis are found principally in those, who, after

having been employed in earlier years for a long time in mirror silvering, have chosen some other occupation and have thereby often for many years, been withdrawn from the influence of Mercury. Those laborers who have for many years (of course with longer or shorter interruptions), been exposed to the action of Mercury, and who already suffer from chronic hydrargyrosis, usually feel far better when at work than when away from it; so that they would continue at it uninterruptedly, if not compelled to stop by the recurrence of symptoms of the acute disease (salivation, ulcers of mouth and fauces), or by pains becoming more intense with tremor and sleeplessness.

Dr. Klement told Dr. Keller, that, in the beginning of his practice there, he took the symptoms of chronic hydrargyrosis for those of actual syphilis on account of their striking similarity to those ascribed to secondary and tertiary syphilis, that he has accordingly administered Dzondi's pills, until convinced, that this treatment was in most cases inefficient; in others detrimental; that the same symptoms constantly appeared in those who had never been syphilitic; and that they uniformly developed themselves in all who continued to be occupied for a long time with quicksilver.

Dr. Klement finally had the kindness to show Dr. Keller a number of typical cases, exhibiting the various appearances of hydrargyrosis previously described. Among these the most interesting were those of wide spread serpiginous ulcers on the arm and leg; deep ulcers in the fauces; extensive papular eruption; and nodes and tophi on the tibia. The morbid picture presented by the other workmen was so generally uniform; showing for the most part a commingling of symptoms of acute and chronic hydrargyrosis; that, to avoid repetition, we have omitted the description of constitutional mercurialism by Hirt, in his work, "The Diseases of Workmen." The bone diseases he represents differently from Kussmaul.

D. Autopsies.

I. Halfort says: "The necroscopic investigations upon workers in Mercury have yielded no constant result. In the major-

ity of cases the intestinal mucous membrane has been found congested, and with traces of local inflammation. In some cases the liver and spleen were enlarged. In the brain and spinal cord there were, now and then, traces of inflammation and softening. When death was preceded by long continued paralysis or tremor, there was atrophy of the muscles affected, where they had succumbed to an attack of asthma, the lungs were found filled with a reddish serum. Laryngitis and phthisis mercurialis presented the usual morbid appearances of these affections.

II. Schneider describes the morbid anatomy of gilders (*Ver-golder*) in the following manner: Indurations of the lungs, liver, pancreas, spleen; gall-bladder filled with black viscid bile; the portal vein with thick, dark blood; lymphatic glands indurated; the teeth and their alveoli, the jaw-bones, as also other bones, carious. The evidences of inflammation in the intestinal canal, not unfrequently found resulting from the internal use of mercurial preparations, were not observed in gilders.

E. Action of large doses of Metallic Mercury taken internally.

58. A man for a long time subject to colic, took on the third day of his illness four ounces of Metallic Mercury. At first there was no effect produced, but on the seventh day a profuse salivation set in, which continued the next day without swelling of the tongue or salivary glands. On the ninth day he passed the mercury at stool, and was almost cured. (*Zwinger ephemerid. natur. curios. obs.* 230, 1688.)

59. Laborde tells of a man who retained about seven ounces of Metallic Mercury for 14 days, and had profuse salivation with ulcers in the mouth and paralysis of the extremities. (*Jour. de Med.* Tom. L. S. 3.)

60. Pinjon reports a case of a woman, 42 years old, to whom 18 oz. of Metallic Mercury, in two doses, was given for *volvulus* as diagnosed by several physicians.

After its administration the vomiting ceased, but the constipation continued; the pulse was almost imperceptible; the skin cold and pale; the anxiety extraordinary; face emaciated. The skin, especially about the nose and eyes, had a gray tint,

quite like that of Metallic Mercury. The eyes were sunken, the upper extremities and the jaw trembled continually. The violet colored and bleeding gums hung in shreds, the lower incisors fell out. The lower jaw was exposed in many places, the breath fetid. She was not salivated. In a short time she died quite suddenly, fully conscious. No autopsy was allowed.

F. Absorption and General Effect of Metallic Mercury. Mercurial Cachexia.

Though L. Hermann considers it extremely probable that the mercurial vapor inspired is oxydized, as soon as it rests upon the air-covered respiratory mucous membrane, we believe, in accordance with the view of Oberbeck, in regard to the oxydation of the Mercury in mercurial ointment, that it is changed to an oxyd by the Ozone contained in the blood corpuscles. Falk expresses the opinion that the Mercury thus oxydized is changed by means of the pulmonic acid discovered by Verdeil, or of some other fluid, into a soluble salt. Taken in considerable quantity it usually passes rapidly through the intestinal canal, and emerges unchanged per anum; only an inconsiderable quantity having been changed to a soluble salt and absorbed. Thus it is explained how small doses, remaining longer in the intestine, being finely divided and oxydized, act more powerfully upon the organism, than the large ones formerly administered for incarcerated hernia, intestinal incarcerations, volvulus and ileus.

The mercury, in the condition of sub-oxyd, protoxyd, or salt, having reached the blood, the first appearances of poisoning are manifest in organs of the vegetative sphere, in the mucous membranes and glands. There is a congestion of these parts, and their secretion as well as absorption is increased. The quality of the secretions is also changed. The mucus secreted is glassy and serous; the bile darker, more fluid and stronger smelling; the intestinal discharges thinner in consequence of increased secretion of bile and from the bowels; the urine is frequently cloudy; the exhalations from the lungs and skin have a peculiarly stale odor.

(In the beginning of the mercurial action, according to Wil-

bouchewitsch, the number of blood corpuscles is increased. From the investigations of Overbeck it appears that the quantity of fibrin is also increased at first, as was evident in the animals treated for a short time by him with mercury.) If no further doses of the drug are taken, the poison is eliminated by the secretions and excretions, and can be chemically detected in the saliva, urine, milk, etc. If the doses of mercury are repeated at short intervals, there ensues a disorganization of the blood; according to Headland, it is deprived of about one-third of its fibrin, one-seventh of its albumen and one-third or more of the corpuscles; with the substitution of an ill-smelling, fatty substance, the product of this decomposition. Hence we see, as a result of the diminished amount of fibrin, ecchymoses and hæmorrhages; and anæmia as evidence of the loss of red corpuscles; while the disorganizing process is evinced by the peculiar offensive odor of the secretions. All the tissues become softened and spongy; passive congestions, especially of the salivary glands, occur; the membranous and glandular tissues are soft, and easily torn; the lobes of the glands become hydropically distended and separated; the mucous membrane disorganized—hence its separation from the teeth, ulceration, etc.

The fibrous tissues, which resist longest, become spongy; the tendons soft; the periosteum swells, loosens from the bones and becomes disorganized. Finally the bones themselves are affected; caries, necrosis, osteomalacia destroy the hardest of human tissues. Brain and spinal cord are also altered, giving us sclerosis, softening and atrophy. We will here detail the features of the mercurial cachexy: The sufferer feels dull and depressed, his digestion disturbed; he suffers frequently from acid eructations, gastralgia, with incessant hiccough (v. Hasselt), flatulence, constipation, frequently alternating with diarrhœa, often passages of bile; he emaciates gradually and becomes quite apathetic. The hair becomes lustreless, dry, and falls out; the eyes sunken in the sockets, with a dull, watery look; conjunctiva yellowish, showing the course of bundles of varicose veins closely surrounding the cornea. The color of the iris is changed, so as to be a dis-

figurement. The face has a pale, dirty, earthy look; the cheeks sunken or hanging; the nose pointed. The gum is retracted from the teeth, and bluish red; the teeth themselves have lost their enamel, and are partially covered with a cheesy coating, partly black, carious and loose, or they have fallen out. The entire mucous membrane of mouth and fauces is spongy and has a pale, dirty bluish look. The breath is offensive; the lips bluish red; the chin sharp and prominent; the entire skin lax and wrinkled, feeling cold and showing distended veins. The saliva is tenacious; the sweat sticky; urine pale, at times turbid; stool generally watery; the exhalations offensive. The motor capacity is weakened, so that he tires easily. Mental activity is diminished and he becomes indifferent to everything, his apathy increasing even to idioey, which is preceded by weakness of memory and of all the senses.

In addition to these symptoms, there are eruptions, ulcers, tremors, paralysis, etc. There are also mucous discharges and hemorrhages; the subjects are always cold; the feet become cedematous, while the rest of the body is emaciated. Finally, death may come by general weakness, hectic fever, dropsy or apoplexy.

Mercury is to be found in all the tissues and excreta of men and animals poisoned by it; e. g., in the saliva of salivation; in the feces, as sulphuret or sulphide, whence, perhaps, the green color of the stools; in the urine, liver, brain, etc. Metallic mercury is sometimes found in the bones of persons long and heroically treated with mercury: a reduction requiring, in all probability, a very long time.

The form of the mercurial disease is very diverse, according to the individual and the mode of development. Pregnant women are especially susceptible to the action of mercury. Young persons are more easily affected than old; badly nourished than those who are well nourished. Mercurial cachexy is far more frequent among the mines; and neurosis (tremor) occurs but seldom. Exactly the converse is observed among gilders and mirror-silverers. The internal use of mercury produces chiefly the symptoms of disturbance in the digestive

apparatus and cachexy. From endermic use, the affections of the skin appear more prominently than those of the buccal and intestinal mucous membranes; the symptoms arising from the nervous system being comparatively infrequent. From all these appearances it is obvious that metallic mercury (as well as its derivatives) acts predominantly on the sympathetic, which presides over the digestive and circulatory systems, and injuriously upon the brain.

Finally, Overbeck, by microscopie investigation of the animals treated by him with inunctions, found globules of Mercury deep in the skin and the subcutaneous connective tissue, where it was rubbed in. As he found them also in the deeper layers of the epidermis, he believed that they penetrated the epidermis itself, and not merely, as affirmed by Oesterlen, made their way through the hair follicles and sudoriferous ducts. Now, although the inuncted parts were covered with an effective bandage so that the animals could not lick them, Overbeck found globules of Mercury in the fæces, the kidneys, liver, blood, buccal mucous membrane, cardiac muscle and brain. Thus it has been shown that particles of Mercury are deposited by the blood in the internal organs.

While *Rindfleisch*, who repeated these experiments, denies the penetration of the globules of Mercury, the result attained by Isid. Neumann deserves our consideration. He found that globules of Mercury penetrate the hair follicle, even alongside the hair, mostly as far as the beginning of the lower third. Transverse sections show distinctly that the globules lie concentrically about the hair, while in follicles, from which the hairs have come out, the globules are heaped up in great quantity. He also met them in sebaceous glands with an independent duct, less frequently in those ending in a hair follicle. In the orifices of the sweat glands Mercury is frequently found in considerable quantity, seldom in the ducts, never in the glands themselves. In the cuticular tissue, however, and in the panniculus adiposus none were detected. In the internal organs Neumann saw globules of extreme minuteness, but could not say, whether they were Mercury, fat, hair or molecular detritus. The particles deposited in the hair follicles must

have been absorbed thence, as they were no longer found there after a few weeks but could be detected chemically in the internal organs. The way is pointed out by Neumann as through the lymphatics, and the form that of solution. In the internal organs also, the Mercury appears to circulate in solution, at least we are unable to see globules which can be indubitably recognized as Mercury.

2. SYMPTOMS AFTER LARGE DOSES OF MERCURIUS SOLUBILIS.

1. In a healthy man who had never had any eruption, after taking two grains of Merc. sol., a tetter, beginning on the forearm and chest, gradually overspread the whole body, only sparing the face and the posterior aspect of the extremities. At first little red pin-head sized spots appeared here and there, and, enlarging at the periphery in a circular manner, gradually coalesced and covered large surfaces. The color, at first bright red, became subsequently deep red or bluish-red, darker at the edge, brighter in the middle. With increasing size the centre showed sound skin, while the border extended in a circle. These places were slightly elevated, rough and dry, and covered with little white scales, which were continually being rubbed off by the clothing, and reforming, so that after undressing at night the floor seemed as if covered with meal. In the axilla, bend of elbow, groin and hollow of the knee they were most abundant, constantly burning and painful; and when the pimples formed there was a little fever, the affected portions of the skin being hot, swollen, red, and extremely sensitive to the touch of the clothing, impeding the use of the arms, and the sleep wanting or very much disturbed. Itching upon taking off the clothes and at the contact of cool air, ceasing in the warmth of the bed. After touching, rubbing, washing or taking wine they burned excessively. The axillary and inguinal glands swollen and painful. In some places, *e. g.* in the groin, little superficial moist ulcers formed from the tetter, which after some days became covered with yellowish scabs, and healed up. The tettery eruption lasted from the middle of January to the beginning of April.—(*Knorre.*)

2. After five doses, aggregating $2\frac{1}{2}$ grains of Merc. sol., a

diarrhœa began, soon becoming dysenteric and bloody, with colic and tenesmus, and great vascular excitement.

3. Andrien observed eczema on three persons, after doses of 5—10 to 20 centigr. Merc. sol. $\frac{3}{10}$. Red spots, with little burning itching herpes on the body and extremities, not on the face; also some sores on the right elbow. In one case the skin affection appeared on the inside of the right thigh, as herpes squamosum madarosis, (according to Hebra, eczema squamosum).

3. MERCURIUS SUBLIMATUS CORROSIVUS.

a. Experiments upon Animals.

Experiments by Brodie:

1. A solution of 24 grs. corrosive sublimate in 6 dr. aqua dist., was injected into the stomach of a cat. After five minutes, she vomited twice, was restless, seemed paralyzed, the pupils dilated. Twenty-five minutes after the injection spasmodic movements of the voluntary muscles and death. The thorax was opened at once; the heart still contracted feebly; the stomach was quite empty, its mucous membrane throughout brown-gray; its texture gone, very easily torn, and separated from the muscular layer. The mucous membrane in the first quarter of the duodenum was similarly but not so greatly altered.

2. Both vagi in a rabbit were divided and a solution of corrosive sublimate injected into the stomach. It acted in the same way as if the nerves had not been divided.

3. A small quantity of sublimate was injected into the posterior portion of the abdomen of a frog. After five minutes, the heart ceased to contract, but sensibility was not diminished, and after an hour the animal still had some sensibility.

4. The lower half of the spinal cord was extirpated so that the communication between the nerves of the posterior extremities and the rest of the nervous system was severed. A solution of sublimate was then injected between the skin and muscles of the thigh. After seven minutes the heart ceased to beat.

Experiments of Smith:

5. After placing four to eighteen grains of corrosive subli-

mate upon the connective tissue of the inner portion of the thigh of a dog; the only symptoms preceding death, which always come without spasmodic appearances, are: anorexia; at times vomiting; diarrhœa, frequently bloody; weakness and general paralysis. At the autopsy will be found evident inflammation of the gastric mucous membrane, with bloody exudation; sometimes black spots upon it; finally ulcers. In the rectum there may be two very diverse changes. Sometimes its walls are thinned and livid, with a red, blackish, very offensive fluid; but most frequently it is found wrinkled, and the folds of mucous membrane red or blackish, either generally or only on one part, usually the upper part. This change in the rectum comes as well when the poison is applied to the neck, as when it is injected into the veins. Some black spots, similar to those in the stomach are occasionally observed in the duodenum near the pylorus. The small intestine seems to be but little altered. In one of these experiments, black spots were found in the muscular tissue of the heart immediately beneath the endocardium.

The lungs are often strikingly altered, sometimes distended with black blood, but crepitant; usually black spots or infiltrations of blood are found on the anterior border. The same organic changes are observed from injecting into the jugular vein a solution of one or two grains of sublimate.

Experiments of Orfila:

6. Three grains of corrosive sublimate in substance were put upon the connective tissue of the thigh of a medium sized dog, about 11 A.M. At 6 P.M. he seemed dull. The next morning about 11 A.M. the pulse was very rapid, the tongue moist and natural in color. No sign of paralysis or vertigo. At 5 P.M. dyspnœa, the dog lying upon his side. The next morning he was dead. *Autopsy:* The thigh was infiltrated and considerably inflamed; the place upon which the sublimate was put was grayish. On the mucous membrane of the stomach, which was natural in color, and close by the pylorus, were found six or seven coal black spots, caused by extravasated venous blood. The small intestine was normal; the rectum somewhat red. The crepitant lung was brown, containing considerable

blood and floating on water. Mitral valve cherry-red; otherwise the heart was healthy.

7. About 11 A.M., six grains of sublimate in substance were applied to the connective tissue of the inner aspect of the thigh of a very large dog. About 1 P.M. he vomited; the next day, burning thirst; the third day he would not eat and endeavored to guzzle water, which he immediately vomited again. Inconsiderable vertigo without spasm or paralysis. Death about 4 P.M.

Autopsy: The thigh operated upon was very much infiltrated and excessively inflamed, but not an atom of the sublimate was to be found. The mouth was grayish; the stomach contained considerable yellowish mucus; the mucous membrane here and there cherry-red, and at the pylorus, ulcerated. The small intestine seemed normal; the rectum very much inflamed. The tricuspid valve of the heart was beset with minute black points of extravasated blood, which the slightest friction changed to ulcers; otherwise the heart was healthy. The lungs were crepitant, somewhat infiltrated and floated on water.

8. September 13th, about 11 A.M., six grains of dry sublimate were introduced into the connective tissue of the back of a small, weak dog. On the 15th, he would not eat and had a burning thirst, but vomited as soon as he drank. On the 16th, 17th and 18th, condition the same, with marked increase in the rapidity of heart's action. Death the night after the 18th.

Autopsy: Intestinal canal appeared unchanged. Endocardium in both chambers of the heart red and inflamed; numerous red spots on some of the columnæ carneæ; lungs engorged and spotted black.

Experiments by Gaspard:

9. Injection of one grain sublimate into the jugular vein of a large dog produced salivation, dyspnoea and symptoms of inflammation of the lungs, which increased in the days following, and there were added vomiting, diarrhoea, fever and cramps. On the fourth day, the dog died. The lungs were beset with blackish swellings the size of a pea, of which some were inflamed, others suppurating and still others gangrenous

(bronchial glands?); the liver was black and softened; gall-bladder full of thick, black, viscid bile.

10. A solution of five grains sublimate in one and a half ounces of water was injected into the jugular vein of a bitch. There was immediate dyspnœa, evacuation of urine, and after a few seconds, death. The lungs were already somewhat spotted, with evidences of suggilation and gorged with blood.

11. A grain of sublimate, dissolved in a half ounce of distilled water, was injected into the jugular of a bitch. After fifteen minutes, she was taken with a chill, dulness, diarrhœa, dyspnœa and salivation. The symptoms of pneumonia and dysentery increased. There was tenesmus, with mucous and bloody stools, and after five and a half hours, she died. The lungs were extensively inflamed and distended with blood, sinking in water. The intestinal mucous membrane was red and inflamed and covered with a dirty, sanguinolent and ichorous mucous.

B. POISONINGS BY CORROSIVE SUBLIMATE IN MAN.

a. From External Application.

1. A man plagued with body-lice, used with effect a salve of calomel and fat. But after some time, his disagreeable guests returned in greater number than before. He had to use the remedy again, but by mistake got sublimate instead of calomel. He mixed five grains with some salt butter and rubbed the salve over the whole lower portion of the abdomen, the penis, except the glans, the scrotum and the perineum. Two hours afterward he experienced violent pains, the skin inflamed very rapidly, and in many places little vesicles appeared filled with serum. Poultices of meal with cold water ameliorated the pains, and the next day there was left only the sensation of creeping ants. The scarf-skin separated in large patches from all the inflamed places. Otherwise there were no ill effects. The general condition was excellent.

Orfila, Toxicology:

2. A strong woman, æt. 49, consulted a quack in regard to an open cancer of the breast; he put a white powder of subli-

mate on it. Violent pains ensued, which in the course of four hours became intolerable. At the same time a quantity of symptoms appeared: dyspnœa, nausea, blood vomiting and the most violent convulsions; the next morning she was dead. (*Memoirs de l'Acad. de Chirurgie.*, Tom IV., p. 154.)

Cloquet relates the following case:

3. May 22d, 1815, about 5 P.M., I dipped my hands repeatedly into a very concentrated solution of corrosive sublimate to take out some anatomical preparations. I forgot to wash my hands and went about my other occupations. About 11 P.M. I went to bed perfectly well, and was wakened about 1 A.M. by violent pains in the epigastrium, which rapidly increased to a frightful intensity, somewhat ameliorated by bending the body. They were especially severe in the region of the stomach, and seemed to spread thence over the whole diaphragm. The abdomen was rather sunken and painful to pressure; constricted feeling in the entire thorax; respiration costal, obstructed and irregular; mouth dry, thirst considerable, forehead, temples, chest and hands covered with sweat and having an unpleasant feeling of coldness in them. I was in this condition about one and a half hours, when repeated eructations and nausea ensued. I made an unsuccessful attempt to vomit, and then for the first time remembered the sublimate. Putting my fingers to my tongue, I perceived by the sharp taste that I had forgotten to wash them, which I did now as quickly as possible and drank a quantity of sugar water. About 2 o'clock I finally vomited repeatedly, and at first very profusely. The vomit was slimy, thick and had a metallic taste, very acrid, causing a painful constriction of the fauces. Epigastrium very sensitive to touch, and the slightest pressure caused most violent pains. The vomiting ceased toward 4 o'clock. The umbilical region became somewhat painful and I had three very liquid stools with tenesmus. Toward 5 o'clock I slept and wakened about eight, with a dry mouth and skin covered with sweat, but I no longer had the feeling of coldness on the forehead, in the umbilical region and in the hands. The disposition to vomit was gone, but the epigastrium was still very painful. I took that day only six cups of bouillon

and three dishes of rice water. The next day I was able to return to my duties, but an unpleasant feeling remained in the epigastrium for eight days.

4. After the application of a caustic liniment, composed of corrosive sublimate and gum-water, to the glans penis to destroy numerous condylomata, there occurred not only paraphimosis with severe pains, but also, after three hours, metallic taste in mouth and throat; violent colic and cardialgia; tenesmus, with loose discharges; bilious vomiting; cramps in the calves and stitch in the side. (*Beobacht. u. Bemerk. aus dem Gebiete d. Med. u. Chir.* 1829, S. 18.)

5. The external use upon two children, aged 11 and 7 years, of an ointment composed of two drachms sublimate to the ounce of lard, immediately caused violent pains; and after forty minutes, delirium; vomiting of green masses with colic; loose and bloody stools. They became worse and died; the younger on the seventh, the older on the ninth day. (*Hirschel, Archiv f. Arzneimittelehre.*)

6. A man with rheumatism was persuaded by a friend to make use of a solution of one-half drachm sublimate in an ounce of rum, rubbed upon the affected part, for several minutes, before going to bed. Before the application was ended, the man felt a warmth in the part, but paid no attention to it. During the night he got pains in the stomach, nausea and vomiting, and soon afterward purging and tenesmus. In the morning Anderson found him extremely weak and vomiting incessantly. The arm was excessively swollen up to the shoulder, red and covered with blisters. The next day he complained of a brassy taste and sensitiveness of the gum, and salivation speedily followed. (*Edinb. Med. and Surg. Journal*, VII., 437, 1835.)

7. An old woman who had used a plaster of sublimate, got intolerable pains, jerkings, swelling in the throat, salivation, and died in frightful torment. (Plenk.)

A lady had struck the left leg against a door, some ten years before, so that she could not lie upon it. Subsequently a hardness appeared on the place, which a quack treated with two caustic plasters. On the evening of May 7th, he sprinkled

upon the place a half drachm of sublimate, with the direction not to remove the plaster before 4 A.M. Meanwhile the lady was attacked with such an intolerable pain that she walked the room as if crazy, and uttering loud screams. Up to the next evening there were added, general cramps and convulsions of the hands and feet. May 9th.—Retching and actual vomiting. 10th and 11th.—Swelling of the throat, which increased in the night, so as to threaten suffocation.

May 12th.—Degner was called, and found her head and neck very much swollen; the tongue inflexible and swollen; the throat so inflamed that it was only with difficulty she could speak or swallow; the teeth loose; the breath mercurial; on the leg a crust a hand breadth wide and twice as long; below the scab an open sore the same size; and about the affected locality a great inflammatory swelling. (R̄ Jalap-Pimpinella.)

May 13th.—With the rest, the throat continued so swollen that she could not swallow any fluid; besides heat in mouth and throat as from red-hot coals.

May 14th.—Having expectorated clots of blood, the patient pulled the membranes from the roof of the mouth with her fingers, causing so great a hæmorrhage that Degner feared she might die, in consequence, that very day. The apothecary, on calling that evening, found the roof of the mouth, throat and tongue so swollen that she could scarcely speak; in the fauces an ulcer the size of a pea, and on the left side of the soft palate, a fissure; loose teeth and profuse salivation.

May 15th.—Condition the same; salivation profuse; diarrhœa; the excrement having the same odor as the mouth. (R̄ Tinct. Rhei, aq. Sal Tartar. Pimpin.)

The next day the throat seemed less swollen externally, but the face and cheeks were swollen as much, and hard.

May 17th and 18th.—The same pitiable condition. Pain in the stomach; inclination to vomit; sleeplessness; bloody salivation; headache, especially about the temples. (Medicine as on the 15th.) The next day the patient complained greatly of slight delirium; she did not know what she was about.

May 20th.—Increased delirium; she could scarcely be moved any longer, and refused both medicine and nourishment on

account of the pain in swallowing. (Elect. Diascord. at evening.) The next day, worse. Beside the daily expectoration of clotted blood and membranes from the mouth—weakness, which would not permit her to get up; constant salivation. (Tinct. Myrrh, etc., as a gargle.)

May 23d.—No improvement. (Tinct. Antim.) The next day the swelling in the right cheek was less, but not the hardness. In the night of 24th to 25th, a tooth fell out of itself.

May 25th.—Salivation less. Weakness and delirium increased. In the morning the pulse was imperceptible; the salivation less; she seemed to sleep a little, which had not been the case previously; wakening in a fright, and no longer complaining of pain.

May 27th.—No pulse. Great anxiety. At night she wept bitterly and her cries filled the house. 28th.—She died at 7 A.M., unconscious, with distortion of the limbs.

During the whole time there was no fever, and the urine was natural, with a white sediment. The surgeon who attended to the dressing of the limb said that not only were the cheeks, gums, palate and throat ulcerated, but the maxillary bones were exposed also.

June 1st, (after death) the lips were black, the eyelids red, protruding, inflamed. On the 4th, the lips were no longer red, and the lids so contracted that the thumb could be put into the cavity. Autopsy not permitted. (*App. ad. vol. VI, act. Nat. curios. Morimb. 1742.*)

9. After the army surgeon Robertson had applied to an itch eruption on the arms, for seven days a solution (gr. v. ad. unc.) of sublimate, his patient had fever, gastritis and enteritis, and after two days violent salivation. (*Edinb. Med. and Surg. Journal VIII. 195.*)

10. A man with itch had the affected parts washed night and morning with an alcoholic solution (4 or 5 gr. to the ounce, of sublimate). The fifth day the eruption began to disappear, but on the seventh the patient felt extremely feverish, had violent headache, red face, full and rapid pulse and very hot skin. In the night he was taken with severe pains in the stomach, painful eructations and vomiting, which with slight

interruptions continued the whole night. In the morning, these symptoms had abated ; but his rest was of short duration. Diarrhœa and tenesmus set in at once. In this condition Robertson saw him. Pulse small and trembling ; his face looked exhausted and sunken ; eructations frequent and violent and constant inclination to stool ; but the evacuations were scanty, consisting principally of blood and mucus. The great weakness seemed particularly distressing. Large doses of Opium and, when these did not suffice, a warm bath, as well as could be obtained on board ship, followed by a sudorific, and as soon as he began to sweat to be carefully wrapped in warm covering, without taking anything to drink for fear of disturbing the stomach. After the sweat had continued awhile, all the symptoms were ameliorated, and as the patient was very much exhausted, Robertson gave him a large dose of Opium in substance, after which he had a pleasant and refreshing sleep. The next morning the improvement continued, but the exhaustion was great and he complained of intolerable fetor of breath and bitter taste in the mouth. The next day his mouth was worse, the gum swollen and several teeth loose and the third morning from the day when Robertson first saw the man (the tenth since first using the solution), he was in a condition of complete salivation (*Edinb. Med. Journal*, 8 B. 1813).

11. A woman strewed upon the intertrigo of her two years old child, sublimate instead of Lycopod. powder. Beside the local effect there appeared on the second day, painful swelling of the gums, with pseudo membranes and finally gangrene, copious hæmorrhage and death on the fifth day. (*Gaz. des hopit.* 1843.)

12. A strong healthy man, of sanguine temperament, 40 years old, suffered several times with a skin disease, which was said to be itch. In November, 1836, after using an ointment of sublimate, he was taken with acute eczema on the forearms and legs. The ointment contained one drachm sublimate to 3 oz. lard ; he had used $\frac{1}{2}$ dr. twice a day. After using it ten days, an intolerable itching set in, followed soon by an outbreak of small vesicles, filled with transparent lymph. This exanthem lasted two months and almost deprived the man of rest. The

eruption gradually diminished on the forearms, but the skin on the legs was red and swollen and secreted an offensive fluid constantly so copious as to go through several mattresses, and render it necessary to put something under the bed to catch it. At this time scarcely an ounce of urine was passed in 24 hours, but it was otherwise quite normal in character. As he was in this condition Stacquez ordered diuretics, which caused a frequent desire to urinate, but only increased the secretion from the legs. In the beginning of last winter this remarkable secretion suddenly ceased and was at once followed by swelling of the abdomen and respiratory troubles; these subsided upon the reappearance of the secretion; but again in August, 1837, the secretion stopped and the dropsical symptoms returned. (*Annal. de Med. Belgic.* Oct., 1837.)

13. For the cure of herpes tonsurans in a child 9 years old (after vainly applying acid carbol). Meeres used an alcoholic solution of sublimate with a brush. Soon came the development of vesicles and swelling of the scalp, also diarrhœa and nausea. The next day salivation, swelling of the parotid and submaxillary, restlessness, sleeplessness, along with the ever present inclination to vomit. On the fifth day he suddenly died of syncope. (*Virchow u. Hirsch Jahresb.* 1871, aus *Lancet* 16th, Sept.)

14. Two servant girls, who had had an inunction over the whole body of sublimate ointment for itch, got a vesicular erysipelatous inflammation of the skin, with vomiting, diarrhœa, and tenesmus; also ulceration of the buccal mucous membrane, without salivation. Both died in spite of medical treatment; the one after four and a half, the other after six days, having had formication of the extremities, but no convulsions or sensorial disturbance. In both corpses, the epidermis was found loosened in various places, the corium highly inflamed. Serous and mucous membranes of stomach and small intestine as well as the omentum were inflamed; the mucous membrane of larynx and trachea cinnabar-red and covered with reddish mucus. In the one who died first was found redness of the mucous coat of the bladder and ureter; intense hyperæmia of the kidneys; two purulent deposits in the region of the pelvis of the left

kidney; congestion of the uterus and tubes, and in the vascular territory of the venæ cavæ, of the coronary veins and cerebral sinuses. In the other, an inflamed place on the serous covering of the liver, bloody serous exudation in the pericardium and mediastinum; inflammation of endocardium and endothelium of the large arteries. Only in the kidneys of the first was Mercury chemically detected. (Canstatt's *Jahresb. f. 1864, aus Vierteljahrsschr. f. gerichtl. Med.*, II. F. 12.)

15. A woman, æt. 24, who had vaginal leucorrhœa in consequence of using a variety of medicaments for ulceration of the cervix uteri, injected for its removal one-third of a mixture which by mistake contained, instead of calomel, three grains of sublimate to 100 grms. lime water. Scarcely had this been done, when she felt a severe burning pain and pressing in the genitals as in labor, and accompanied by a considerable discharge of a clear, thin, slimy fluid. To these were very soon added indications of general poisoning, repeated vomiting, feeling of burning deep in the stomach, dry tongue with red edges, heat and dryness in throat, mucous and bloody evacuation with urgent tenesmus, cold extremities, spasmodic jerking of fingers and thumbs, and adynamia with slow, weak, almost imperceptible pulse. After the complete development of the toxication, there was swelling, redness and heat in the vagina, with profuse discharge. Ulceration was not observed in the vagina, but the examination was made without a speculum.

After 24 hours, the symptoms had considerably abated, but there was still tenesmus and discharge of bloody mucus. The coldness of the limbs had gone entirely, but the pulse was still very irregular, beating fifty times to the minute, and weak. The second day after the poisoning, the dangerous symptoms had all vanished, even the tenesmus and cramp in the calves which were still present the day before; pulse 64, small and weak; gums sensitive, submaxillary glands swollen. Forty-eight hours later there was complete salivation, with the characteristic fœtor oris mercur. These symptoms subsided in ten days. The woman was treated with preparations of opium, hydrocyanic acid, alkalies, ice water, brandy and sinapisms. (Canstatt's *Jahresb. f. 1856*; Butscher, *Jour. de Med. de Bordeaux*, 1856.)

b. From Medium and Smaller Doses Internally.

16. Van Swieten observed from small doses, troublesome dryness of throat, often long after its administration; vomiting, inclination to vomit; nausea; feeling of burning from the stomach to the throat, when there has been no vomiting; colic; intestinal evacuations; borborygmi. (*Comm. in Aphor.*, Boerhave, V., 549, 1772.)

17. Seven grains dissolved in water was used in eight days. On the fourth day salivation to the extent of three to four pounds daily; but the swelling and fœtor of the mouth were not so great as in salivation from calomel. (*Med. Obs. and Inquir.*, II, 230.) At first the drug causes diarrhœa, and increases the secretion of urine; causes night-sweat, and frequently pains in the stomach in the morning (p. 554). By the abuse of sublimate some got dysentery, hæmoptysis, phthisis, tabes, etc. (p. 556).

18. A merchant from Liege, æt. 30, of strong constitution, who had never been sick, went to Paris on business. August 6th, 1813, he got a slight diarrhœa, without known cause, which lasted three days and was cured with Ipec. On the 13th, seeming to be fully recovered, he drank about 3 P.M., from a glass, without any mark upon it, containing a solution of sublimate in alcohol. The horrid taste disgusted him so that he broke the glass. An astringent feeling in the throat and frightful pains in the epigastric region were the first symptoms. The physician came at 4.50 P.M., and was told that the man had vomited much green, bitter, not bloody matter, and had three stools.

His condition was as follows: dorsal decubitus; red, swollen face; very restless; shining eyes; contracted pupils; reddened conjunctiva; dry, cracked lips; rather moist, yellow coated tongue; frightful pains in the entire intestinal canal, especially in the pharynx; abdomen distended, especially painful to pressure. The vomiting had ceased but the diarrhœa continued. Pulse 112, regular, small, contracted; burning, hot skin, especially on the forehead; respiration obstructed, infrequent; difficult micturition; perfect consciousness; inclination to sleep;

occasional spasmodic movements in the muscles of the face, arms and legs; persistent cramps in all the extremities. (White of egg water; twenty leeches to the epigastrium; two cold, laxative clysters.)

About 5 o'clock, decided improvement; he had taken all the drink (six lbs.), vomited profusely, and had four stools. He got four pounds of a decoction of linseed to drink. About 6 o'clock, vomiting, cessation of cramps, pulse 100. About 9 o'clock, very imperfect sleep. About midnight, stitches in the arms, bloody stool, severe pains in sigmoid flexure, pulse 115, small, contracted; (ten leeches along the descending colon; two clysters with laudanum). Vomiting; four much less bloody stools; almost entire cessation of pain; inclination to sleep.

On the 14th, about 8 A.M., less distension and less painfulness of abdomen; tongue moist; no inclination to vomit; no diarrhoea; pulse 96; skin less hot; cessation of cramps; consciousness perfect. Evening: exacerbation; pulse 106; extreme heat of skin without increased pains; narcotic clysters. On the 15th, he felt much better; had slept part of the night and wanted to eat. Tongue moist; pulse almost normal; extreme weakness; at evening the same condition.

On the morning of the 16th, having slept well, he complained only of trifling, not persistent, pains in the epigastrium; appetite good.

On the 17th and 18th, condition the same.

On the 21st, convalescence began, and on the 31st, he returned home quite cured.

This sickness might, at first glance, easily be taken for cholera. The bilious affection which the patient had had some days before, the bilious vomiting, the bloodless stools, the cramps in the extremities, and the very high temperature, all favor that view; but the anamnestic momenta, the chemical examination of the vomit, and the story of the patient, clearly demonstrate the poisoning. The disease was a true inflammation of the intestinal mucous membrane and peritoneum, complicated with a bilious affection, the result of the sublimate. (*Orfila Toxicology.*)

19. On the 25th of February, 1825, Thenard was lecturing, in a polytechnic school, on the nitrates, and especially on the mercuric nitrate. On the table stood two similar glasses, one containing sugar-water and the other a concentrated solution of sublimate, of which latter Thenard, by mistake, drank a mouthful, perceived at once the frightful taste, and called for white of egg in water, drinking repeatedly meanwhile of tepid water. Eggs were obtained, the whites stirred together and given him five minutes after the poison was taken. Despite tickling of the palate and fauces, he did not vomit. Shortly after drinking the white of egg water vomiting ensued, and the injecta had the character of sublimate united with albumen, white and flocculent. Dupuytren arrived after Thenard had vomited four or five times, and had repeatedly taken the white of egg water. Thenard felt so much better that he told Dupuytren he was cured. Dupuytren ordered castor oil and some purgative clysters. About 9½ o'clock, Thenard, who had vomited twenty to twenty-five times, felt very well; there had been no pains in the epigastrium or intestinal canal; a very copious stool had passed ten minutes after the poisoning, long before there could have been any effect of the purgatives. (*Jour. de Chimie Med.*, 1825.)

20. A carpenter, æt. 30, received for supra-orbital neuralgia on the right side, pills of sublimate, which he took for fourteen days, and then left the hospital. He had trembling of the limbs, especially when they were extended; heaviness of the extremities; trembling of the feet in walking. The trembling was worse on the left side, especially in the morning on rising, at evening, with feverishness. Sense of coldness of the left side, worse after midnight, so that he could not get warm; toward evening, icy coldness; cold chills in the sacral region, as if there were shot in there; sweat first in the left axilla, then general, on waking from sleep in the night. (*Buchner, Der Sublimat.*)

21. W., registrar, received for a slight herpetic trouble sublimate pills, and took altogether twenty-four grains. The herpetic difficulty was cured, but the effects were frightful. He writes: "My teeth, previously sound, became loose and six

came out. A nasal discharge ensued of the character of isinglass, drying to a strong hard mass, especially in the posterior choanæ and frontal sinuses. Of this mucus, hard pieces the size of a bean, frequently bloody, were discharged from the nose, at the same time there were often the most dreadful pains in the head. Respiration through the nose was maintained by snuffing water and tobacco. The cartilage of the nose was perforated, but the nose did not fall in; the sense of smell was lost entirely. No improvement from the regular use of water. Subsequently the discharge became more consistent and purulent; the teeth became affected again at the roots, manifested by a prickling pressure, and always ending by prominence in the sockets; profuse lachrymation in the open air. In the front of the head, especially on the right side, an unpleasant pressure, changed to a crampy pain by obstruction of the discharge. Sleep frequently only for an hour. Cure after discharge of a great portion of the necrosed upper jaw. (Buchner, *Der Sublimat*.)

22. A man in the neighborhood sought the assistance of Sydenham for his servant, who had swallowed a considerable quantity of corrosive sublimate. Nearly an hour had elapsed before the physician reached him and his lips and mouth were already much swollen. He suffered extremely not only from heat, but also from a burning pain in the stomach. Sydenham advised him to take repeated draughts of lukewarm water as quickly as possible, taking more as often as he vomited. Sydenham also wished to wash out the intestines with the lukewarm water, without using clysters until the abdominal pains manifested a disposition of the person to pass downward. The friends who were with the sufferer, noticed an acridity of the water first vomited, which diminished with the vomiting. The pains, which soon after ensued, were mitigated by clysters of water. After a few hours the man recovered, except that the swelling of the lips did not immediately subside, and the mouth was ulcerated by the particles of poison contained in the water vomited. The symptoms vanished under a milk diet within four days. (Sydenham, *Op. Med.* Epist. 1, p. 200.)

23. Sublimate was injurious to most of the patients and

caused contracted limbs, spitting of blood and fatal consumption. (Quarius, *Bemerk. über verschied. Krankh.*, Wien. 1787, p. 320.)

24. A strong man, of sanguine temperament, æt. 40, took about 10 P.M. some sublimate dissolved in beer. He noticed at once the corrosive effect upon the mouth, œsophagus and stomach. Inflammation of the mouth ensued, and a sharp burning heat in the stomach, with the most acute pains, which speedily involved the entire intestinal canal. The face soon swelled and became red; the eyes shining and the breathing difficult. He became anxious and restless, tossing continually to and fro. Pulse small and feverish. After six grains of Ant. tart. he vomited, but the condition was aggravated. Treacle also brought no amelioration. Dumonceau prescribed immediately a drachm of sol. absinth in water, and gave enveloping remedies. The violent pains increased in intensity, and seemed to indicate corrosion of the gastric mucous membrane. He passed bloody stools, but got decided relief from the sol. absinth with Fuller's decoction. Gradually the pains subsided, so that the next morning he got rest. All the dangerous symptoms had vanished, but there remained a painful sensation in the whole intestinal canal and a general feeling of weakness. (*Jour. de Med. f. 49, p. 36.*)

25. Anna O, a black-haired girl, æt. 22, had a couple of spots of squamous eruption on the occiput, for which was ordered 1-300 gr. sublimate every other day; instead of which she took daily six times the dose. After taking it for six days, she got at night burning, tearing pains about the navel, having remissions and intermissions, which latter became continually shorter. Thence the pain spread over to the whole abdomen, which was distended, painful to touch, but soft. Also restlessness; heat; pulse tense and somewhat quickened; much thirst and redness of the face. Duration, 27 hours. Antidote, Belladonna. (Buchner, privately reported.)

26. In a man and woman who had taken sublimate for chancre, but were not salivated, there appeared inflammation of the right eye, which involved not only the posterior surface of the cornea, but also the serous covering of the iris. The

pupil was angular; the eye very painful, as if too small. Symptoms especially aggravated in bed. (*v. Ammann's Zeitschr. f. Ophthalmol.*, B. I., S. 111.)

In very Large Doses.

27. May 6th, 1825, about 11 p.m., a woman was found by the physician in the following condition: She lay in bed with the limbs hanging down; skin cold and covered with sweat; face pale; eyes dull and heavy, with dark rings surrounding them; with an expression of pain and horror, as one might feel who lives but to die. Whitish, contracted lips; great thirst; swallowing so difficult and painful that the least liquid caused contractions of œsophagus and stomach, followed by vomiting of whitish, slimy, stringy, and subsequently bilious matter. Pressure on the throat was painful, as was also the whole œsophagus. Skin of abdomen cold. Feeling of burning heat and intolerable pains in epigastrium, increased by the slightest pressure. Diarrhœa, with intense urging. Pulse weak, thready, almost imperceptible. Respiration very slow. On the floor, in various places, lay patches of white, slimy matter, seemingly vomit. Under a table in a corner there was a wet place strewn with a white powder, having the taste and look of sublimate. (White of egg water, 40 leeches to the epigastrium, 15 to the sides of the neck, and a large poultice to the abdomen.)

At 8 a.m. she could speak more easily; pulse fuller and skin warmer. The abdominal pains had extended to the navel. Respiration somewhat hurried. (25 leeches to the abdomen, clysters with opium, fomentations, gum water. Noon.—Depression greater; cold extremities; small, weak and infrequent pulse; difficult speech; sensibility gone in lower half of body, but voluntary motion remained. About 5 p.m. she died, the nurse said, retaining her consciousness to the last. There was no trace of delirium observed at any time. Autopsy, 17 hours after death. A very fat, large corpse. Rigor mortis very great; body cold; upper extremities semi-flexed, lower ones extended. No trace of ecchymosis in skin, connective tissue or muscles. Vessels of dura mater filled with blood.

Arachnoid inflamed, especially on the left side; some ounces of bloody serum in the cerebral ventricles; brain substance slightly injected and firmer than natural. Tongue thick, with large papillæ and glandulæ mucosæ, the latter almost as large as a small pea; inside of larynx grayish and injected; on the lower surface of epiglottis a gangrenous looking spot. Trachea rose-red; bronchi and their ramifications violet; lungs crepitant and their substance reddish. Heart larger than normal; both sides enlarged; the walls thickened; the endocardium not reddened. Pharynx red; velum strongly injected; an ecchymosis on the back of the uvula; œsophagus almost normal, except in its lower third, where congestion begins, increasing toward the stomach, which lies under the ribs, contracted and thickened; its external surface brick-red; under the serous membrane a number of little ecchymoses, giving it a marbled appearance; its veins distended with air; its internal surface throughout blackish-red, especially on the folds formed by its contraction; its mucous membrane easily torn; contents greenish; between the folds a considerable number of whitish granules resembling sublimate or calomel in appearance. In the duodenum very much fainter traces of inflammation; it was filled with green bile. In the omenta many ecchymoses along both curvatures of stomach. In the other intestines nothing noteworthy, and only in the rectum some traces of congestion. In the pelvic cavity about eight ounces of sanguinolent fluid. Liver, spleen and kidneys normal. In the right ovary an ecchymosis an inch in size. Chemical examination of the powder found in the room discovered sublimate. Neither in the vomit nor in the contents of the stomach was there a trace of sublimate; but metallic mercury was demonstrated by various methods, a proof that the sublimate had combined with the albumen, milk, etc. (*From a Report by Devergie.*)

28. A man, æt. 47, drank by mistake a half teaspoonful of sublimate dissolved in a glass of brandy. As it went down he felt a very intense burning pain in the fauces. He was soon taken with vomiting, severe pains in abdomen, bloody stools and cramps. The very same evening salivation and inflamma-

tion of the mouth set in, and the abdominal pains were by spells very severe. The first nine days he did not apply for relief, then he entered the hospital. He complained more of weakness than severe pains. The gums were swollen and bleeding, the salivation considerable, the breath very offensive, the jaws stiff and swollen. No pain in the abdomen, even to pressure. No symptoms in the urinary organs. Pulse 96, somewhat weak. Face expressive of lassitude. In spite of energetic treatment his strength steadily diminished. He repeatedly spit considerable quantities of blood, but without vomiting. The fourteenth day he died.

Autopsy: The buccal mucous membrane inflamed, and in points ulcerated. A small ulcer on one of the tonsils. In the pharynx and œsophagus some irregular brown spots. The stomach contained six and a half ounces of clotted blood, on its posterior aspect immediately under the cardia the mucous membrane was softened, greenish and developed a scab, the end of which foliated, otherwise it was uniformly red. From the cœcum on, were visible ecchymoses, forming swellings resembling hæmorrhoids in appearance, and becoming more numerous toward the anus. In the ventricles of the brain and in the connective tissue, under the arachnoid, a quantity of serum. In the thorax nothing noteworthy. Uropoetic and genital systems entirely normal. (*Edinb. Med. Journ.*, No. 138, 1839.)

29. A young man, æt. 15, immediately after drinking an unknown fluid was taken with vomiting of bloody slime. Burning thirst, bad taste in mouth and burning and astringent feeling in the throat. Upon attempting to swallow he had crampy contraction of the œsophagus and deep cervical muscles. The burning feeling extended along the œsophagus to the stomach and intestines. Abdomen contracted and very painful to pressure. Tongue, gums and buccal mucous membrane appear wrinkled and as if they had been touched by caustic. Pulse weak, rapid and irregular. Face pale—sticky sweat. From the symptoms and accompanying circumstances, poisoning with a concentrated solution of sublimate was inferred, and oxide of zinc in milk and white of eggs was given.

May 7th.—Continual vomiting of bilious matter with masses of blood and similar stools. The symptoms of a very severe enteritis ensued. Pulse frequent and scarcely perceptible, skin covered with cold sweat, and at evening sleepiness. This condition lasted till 9 P.M. when moderate salivation came on. He seemed to fall into a typhoid condition and died May 12th, five days and ten hours after the poisoning. During this time he passed no urine. The fluid of which he took something less than a liqueur glass, consisted of a solution of one part sublimate to seven parts alcohol.

At the autopsy there was found intense inflammation of mouth, œsophagus and stomach, with ulceration. The intestinal mucous membrane was softened and covered with ecchymoses, the bladder very much contracted. Other organs healthy. (*Orfila Toxicology.*)

30. The wife of a veterinarian swallowed a powder of sublimate, intending to poison herself. The entire powder contained half a drachm, of which she only swallowed a portion, spitting out the remainder. Burning in mouth, œsophagus and stomach soon ensued; the mucous membrane of mouth and fauces looked white and felt rough; excessive thirst, nausea, pulse 40, extremities cool. Twenty-five minutes after the occurrence the white of four eggs with water was given her; there ensued copious vomiting and complete emptying of the stomach. The white of egg was continued and after two hours castor oil given. The burning increased toward evening; also shooting pains in chest, severe pain in the cœcal region; lips greatly swollen; much saliva flowed from the mouth; breath very offensive; pulse 89, intermittent. She seemed to want to sleep from time to time, when she would start, complaining of stiffness of the leg and pressing feeling in the head. Pupils dilated; she only spoke when spoken to; respiration slow, interrupted, at times deep sighing. Urine scanty, with burning in passing it. During the night, stool mixed with some blood. The next morning she felt better; pulse 89; pains in abdomen had ceased. Feeling of soreness down to stomach; mucous membrane of mouth ulcerated in spots. Micturition still very painful. After a few days these symptoms also ceased and she recovered entirely. (*Prov. Med. Journ.*, 1843.)

31. Sept. 28th, 1844, at 11½ P.M., a washerwoman, æt. 65, was brought into the hospital. She had drunk a solution of sublimate in whisky at 10 o'clock. Immediately after swallowing a glassfull at a draught, she noticed a peculiar taste in the mouth, and some minutes later was obliged to vomit and experienced a burning in mouth and stomach. In the house where she had been working during the day a physician was called, who prescribed an emetic, which vomited her, but the pains in mouth and stomach increased; it also seemed to her that her stomach was swollen. At the hospital she complained of great weakness and exhaustion; burning in the œsophagus; difficulty of swallowing; pain in epigastrium, distension and sensitiveness of abdomen. The pulse was small, frequent and irregular; face pale and anxious; fauces greatly inflamed; tongue and tonsils swollen and body hot. The whites of ten eggs were immediately ordered, after which she vomited some bile with albumen. The pain in the epigastrium diminished; she was put in bed and got a mustard plaster and warm bottles to the feet. On the 28th, she complained again of pain in epigastrium, bloody diarrhœa and great thirst; no vomiting; the pain in the œsophagus and difficulty in swallowing had diminished. (Eighteen leeches to the epigastrium, a sinapism to the abdomen, milk to drink, at evening another sinapism.) 30th.—She felt better, complaining only of bloody stools and pain in the rectum. The gums began to pain. Pulse 88. (A dose of castor oil, some leeches to the perineum; bouillon and milk.)

Oct. 1st.—The pain in the rectum and bloody stools have ceased. Gums spongy and teeth loose. (Castor oil.) Oct. 4th.—Diminished salivation and increasing strength. On the 6th Oct. she was discharged, at her own request, pretty well. 16.3 gr. of sublimate to the ounce were chemically demonstrated in the whisky which she drank. (*Monthly Journ.*, 1845.)

32. L., a dyer, æt. 28, of medium size, but strong build and sanguine temperament, always well, had eaten his supper of bread and butter and cheese at 6½ P.M., when he went soon after into the work-shop and there took an ounce of sublimate (whether dissolved or in powder, intentionally or unwittingly

could not be determined), but tried at once to spit it out, and pointing persistently to his mouth, only repeated the words: "Doctor, help." Scarcely twenty minutes elapsed before Dr. L. reached him, but so great already was the swelling of the inner parts of the mouth that what he said was quite incomprehensible. From the mouth itself flowed an albuminous mucus, and there were also repeated retching and vomiting of tenacious slime. Respiration labored, extremities cool, pulse quickened and contracted. Meanwhile the man complained only of his mouth and not of pain in the stomach or anywhere else. While a dozen eggs were being obtained and the whites separated, the symptoms obtained a still more dangerous pitch. The respiration became more difficult and anxious, speech failed entirely; attempt to swallow the white of egg was unsuccessful, resulting only in retching and vomiting; so extreme was the swelling in the mouth that the dyspnoea increased visibly every minute; the face, especially the lower part, continued to swell and became dark, bluish-red; the eyes were staring; the pulse imperceptible, and fifteen minutes had hardly passed when the man collapsed, almost suffocated. Tracheotomy was at once performed and he became more quiet, paler, began to cough a little, and though with some effort, expectorated bloody sputa. To assist this, L. closed the trachea with a fine sponge, but the suffocation reappeared at once and the sponge had to be removed. By this operation, however, as might be supposed, little was accomplished for the main difficulty. The inflammation of the mouth and salivary glands increased steadily, the tongue filled the entire cavity of the mouth; the anterior portion of the cheeks, the glands, the gums and especially the lips were swollen and protruding, giving the man a peculiar ape-like look; there were also repeated evacuations of a slimy, offensive fluid. Though now, by deep incisions in the mouth, especially in the tongue, a quantity of blood was evacuated, the condition still remained extremely distressing, so that cold water had to be allowed constantly to trickle into his mouth, which he at once spit out again, unable to swallow a drop. (Venesection and leeches to the throat.)

29th, 6 A.M.—The night was passed in the utmost restless-

ness, with frequent bloody stools and ameliorated only by constant moistening the mouth with cold milk or water. He was fully conscious and referred only to the painfulness of the mouth, denying any in the stomach or head. He respired audibly through the artificial opening, but the respiration stopped if he bent his head forcibly to the left side, thus closing the opening somewhat by the protruding soft parts. Otherwise the face and hands were icy cold and the pulse almost imperceptible. (More leeches to the neck.) During the day the strength steadily sank, the respiration became slower, the pulse diminished from moment to moment, and the man died at 4½ P.M.

Autopsy.—Twenty-four hours after death: Nothing striking externally. The mucous membrane of the swollen lips, tongue and mouth generally was reduced to a white easily removable pulp, in places it was entirely wanting. The back of tongue, pharynx and larynx were throughout blue, considerably puffed and removable (gangrenous). These structures along with the glottis and epiglottis looked as if they had been in brine. The œsophagus was in almost the same condition, but the trachea, so far as it could be seen without opening the thorax, only showed the mucous membrane slightly inflamed and a filling up above with bloody mucus. Upon opening the abdomen the peritoneum showed no change, but the stomach, which was ligated and removed, appeared congested in the muscular coat, and the inflammation in the mucous membrane was plain, with spots of gangrene. One place in the stomach, containing a reddish fluid, was emptied into a glass for chemical examination. The consistence and uniformly dark red color of the small intestine was noticeable; cutting through long stretches of it, there was a dark red pulp found adherent to the entire inner coat, easily removed by the scalpel, along with the thoroughly disorganized mucous and muscular coats and seeming to be disorganized blood, while the remaining coat held up to the light showed but a few vessels in it. There were no perforations to be found. (Löwenhardt, *Med. Zeitz. f. Heilkunde in Preussen* 1839, No. 7.)

33. A young doctor in comfortable circumstances, but never-

theless melancholy, swallowed almost three drachms of sublimate Feb. 15th, 1834. Twenty minutes after the poisoning, several glasses of oil and milk having meanwhile been taken, the following was his condition: Pale, cold skin, covered with sweat; red glassy eyes; dark red, swollen lips, white coated tongue; acrid, metallic taste in throat and in the œsophagus a burning pain increased by pressure; excessive thirst; gastric region distended, extremely painful with nausea; violent retching with vomiting of masses of stringy mucus. Repeated ill smelling stools in rapid succession with violent tenesmus. Urine passed without trouble. Pulse frequent, small, contracted; respiration slow; voice rough and hoarse. He received a quantity of white of egg stirred up with water. after which he vomited very freely. The vomit became greenish and finally bloody and very exhausting. The pains in throat and stomach increased, so as to extort loud cries. Two more very offensive, pappy stools. After five hours, during which he vomited certainly more than forty times, the fury of the symptoms abated; he got some rest and the white of egg was suspended. A tired sleep ensued, interrupted by efforts to vomit. (Milk of almonds, syr. althææ.)

16th, A.M.—Sunken, disfigured features, pulse 120; pains more severe again; tongue much swollen, covered with a thick white crust. Lips and gums swollen, dark red, here and there cracked, with white covering. About 9 o'clock violent vomiting of bile; several dark colored stools. The lassitude is like paralysis. Urine passed without exertion or difficulty. (The decoction above mentioned, clysters, leeches to throat and abdomen.) At noon the pains were less, the vomiting less frequent, the swallowing less obstructed. Two more stools, with excoriating pains in the rectum. The pulse as frequent as before had become stronger. Sugar water for drink. At evening considerable amelioration of all the symptoms, but there was a burning pain in the rectum.

17th.—Condition same as yesterday, after a tolerably quiet night. Repeated complaint of thirst. (Oatmeal porridge, rice water, with raspberry syrup.) Two greenish-black offensive watery stools were passed.

18th.—Quiet sleep, broken by retching and throwing up masses of tenacious mucus. After a glass of oat-meal gruel, repeated vomiting. Small skin-like pieces were discharged. Toward noon, with the greatest exhaustion and general pains, the pulse was 130, but diminished again to 120; the pains in the stomach also became disproportionately less.

19th.—The symptoms much milder; the pulse (96) had come up, thirst intense; milk of almonds not always retained. In night before the 20th, three stools with violent pains, no vomiting. He obstinately refused food and medicine. The exhaustion increased and there was added (20th) a stitching pain in the front of the head. Six coffee-spoonfuls of French wine were given him in spite of all his opposition. Exacerbation at evening. Every attempt to take a mild, enveloping drink excites vomiting, followed by a longer or shorter fit of hiccough.

21st.—Considerable increase of pains. Vomit and stools bloody. Skin dry, while drops of cold sweat stood on the forehead. Intellectual powers, except a kind of monomania, undisturbed. From the 22d on the symptoms plainly indicated gangrene. Paralysis and stiffness of the limbs increased, the man lay in a stupor, the pulse small, thready, imperceptible; skin icy cold, eyes fixed, pupils contracted, insensitive; the cerebral activity steadily diminished, and in the night of the 27th to 28th he slept away.

Autopsy: The corpse had a remarkably white look and a peculiar, offensive odor. The head could not be opened. The lungs were considerably collapsed, of an ash-gray color, beset with small black points; their substance seemed more compact and containing less blood than usual. The cavities of the heart and great vessels were almost empty. In the mouth to the œsophagus the appearances usual after mercurial poisoning. The inflammation was very evident on passing from the œsophagus to the stomach. The membranes here were intensely congested and thickened and a whitish, puriform substance exuded upon section. The tympanic stomach had a violet tint, dark blue-black, at the large end. The mucous membrane destroyed in spots. At the cardiac orifice two gangrenous places, which had penetrated to the peritoneum. Small intes-

tines of a violet-blue color, the duodenum being especially inflamed. The injection of the large intestine was greatest in the rectum; just above the sphincter ani were a number of gangrenous places. The liver, tolerably large, showed traces of inflammation at many points; otherwise the parenchyma was firm and bloodless; gall-bladder collapsed; urinary bladder healthy, only a little contracted. (*Edinb. Med. and Surg. Jour.*, B. 14.)

34. A small blonde girl, æt. 23, of cheerful disposition, an epileptic from her twelfth year, with a passion for spirituous drink, took sublimate. She went to bed at 10 o'clock apparently well, but soon roused the family by her groans and crying. Dr. P., who came an hour later, found her with pale, anxious, disfigured countenance, half sitting in bed and constantly moving to and fro. Her tongue, pale yellowish in color and greatly swollen, protruded beyond the not less swollen, pale yellow lips, and the salivary glands remarkably voluminous, were prominent in the enormously swollen upper part of the neck. From the mouth, which the swollen tongue kept open, streamed the saliva, also yellowish in color. At the same time violent vomiting with diarrhoea and tenesmus. At a slight touch of the contracted abdomen she started with pain. Cold sweat, marble coldness of the extremities, with a small, spasmodic, frequent pulse, intense thirst, spasmodic palpitation of the heart; dysphagia, dyspnoea, as well as an intense degree of aphonia, betrayed clearly enough a dangerous disturbance in the vital organs. The greatest severity of the symptoms lasted about two hours. The dysphagia became so great that she could not swallow any of the white of egg thinned with water. With the cessation of the vomiting there was a very deceptive improvement; the throat troubles only steadily increasing until she died without the least agony about eleven hours after the poisoning.

Autopsy the same day: Corpse very pale; face distorted; eyelids closed, pupils dilated; lips reddish-yellow; some swelling still on the upper part of the neck. Abdominal muscles in a state of spasmodic tension; the extremities spasmodically flexed and the fingers bent into the hand. The subcutaneous fat had

an uncommonly bright yellow color. Liver very full of blood; spleen bloodless; gall-bladder distended with bile; pancreas unusually large, firm and of a yellow color. The stomach contracted so as to be like a piece of intestine was natural in color, except a discolored spot on the greater curvature near the pylorus, its coatings were thickened. Intestinal peritoneum very vascular. Colon constricted to the size of the thumb. Contents of stomach (three to four ounces) consisted of a viscid, gelatinous yellow-green mass. The inner surface of stomach very red and covered with a yellowish mucus; mucous membrane very much loosened and having a wavy look. In the region of the discolored spot the mucous membrane was especially thickened and distended and had a gray-green and partially bronzed color. Anus open; lungs full of blood; muscular substance of heart unusually tense and firm. The left heart contained very little blood, the right was full of coagula. The tongue, greatly swollen, had a wrinkled leathery surface and pale yellow color; the papillæ at the back very prominent. Mucous membrane of mouth swollen; yellowish white, with some excoriations. Brain unusually firm, except the corpora striata and cerebellum, which were very soft and lax. By chemical analysis fourteen grains of sublimate were still remaining in the stomach. (Anman's *Monatschrift*, 1839.)

35. Sarah Wild, æt. 49, sanguine, melancholic temperament, took, with her four children, nearly two drachms sublimate, about 7 A.M., Dec. 26th, 1816. In her the following symptoms occurred: great thirst, violent pain in præcordia; pulse small, trembling, rapid; great heat; severe pain in pharynx, with dysphagia, in swallowing a little liquid the rough feeling becomes very severe. Incessant and violent vomiting of blood and matter the color of coffee-grounds; repeated and very painful stools. After eighteen hours, change of the pain to the umbilical region for eight hours, thence to the lumbar region till death. Entire lack of pulse twelve hours after the poisoning, even the heart beat in a wavy trembling manner. Brain apparently very much affected. Pupils scarcely sensitive to the strongest light; tongue clean. No urine. Sensitive to the last moment. After great suffering death ensued thirty-one hours after poisoning.

Autopsy: Face frightfully disfigured; skin of back and sides purple. Mesentery and peritoneum highly inflamed; considerable effusion in the abdominal cavity. Gall-bladder very full and large. Liver covered with pale livid spots the size of a sixpence. Bladder contracted to the size of a walnut; uterus inflamed, but not larger than in women who have borne several children. Stomach not much distended, but very brown along the greater curvature, with a portion of the omentum minus adherent, and containing a large mass of dark, clotted fluid. At the cardiac portion a circular place three inches in diameter, involving all the tunics and easily penetrated with the finger; internal surface very much inflamed, the rugæ a deep carmine, the remainder scarlet. (*Edinb. Med. Journ.*, Vol. 14.)

36. Sarah Wild, daughter of the preceding, æt. 3, began to purge violently three hours after the poisoning. Discharge of large masses of bilious matter by vomiting and stool. Pulse small, uncountable; extreme thirst; persistent ischuria. Distressing pains till 6 p.m., then sudden quiet and death twelve hours after the poisoning.

Autopsy: Skin dark, carmine color, like purpura. Omentum and intestines highly inflamed; kidneys not so much so. Mesentery full of red blood. Bladder firmly contracted. Marked exudation of bile on the concave surface of the liver, gall-bladder nearly full of bile. Stomach deep scarlet within, from cardia to pylorus, with a black circular place in the region of the former about the size of half a crown thaler; its edges indented and involving nearly the whole thickness of the stomach, which was not very full of a milky fluid. (*Idem.*)

37. William Wild, æt. 11 (see Case 35), vomited profusely; at times easily and again with pains, especially in the region of the scrobiculus and navel; dysphagia. After twelve hours, coffee-ground colored vomit of clotted blood and violent purging of coagulated lymph, pieces of blood and a delicate transparent membrane. Great thirst; deep lethargy; pulse small trembling and weak; very scanty urine. At the last moment sensible. No radial pulse twelve hours before death, which occurred twenty-four hours after the poisoning.

Autopsy: External appearance as in 36. Eyes more sunken;

dark color of the back; peritoneum very much inflamed; omentum almost abolished. Intestines extremely inflamed, partially blue; one-third of the liver almost colorless; gall-bladder very much distended; large serous effusion in the abdominal cavity. Bladder firmly pressed down on the pubic bone, the size of a walnut. Stomach greatly distended and filled with a black clotted mass; the cardiac portion, far more than in the two preceding cases, destroyed, a black circular spot three inches in diameter, whence a general inflammation extended over the whole internal coat. Deep scarlet almost carmine redness, especially of the rugæ; the greater curvature yellowish, brown and very soft externally. (*Idem.*)

38. George Wild, æt. 4 (v. Case 35), vomited violently and incessantly a sticky frothy mucus; great pain in pharynx; complete dysphagia; great restlessness; violent pain in scrobiculus; pulse rapid and weak; no urine. Within six hours repeated urging to stool, with discharge of great circular pieces of coagulated lymph.

27th.—Very bad night; complained greatly of severe pains about the navel; vomiting less severe; extremities cold; intense thirst; tongue red and burning; coma; pupils insensible; pulse weak and small. Stool livid, grumous and offensive; abdomen very painful to the slightest touch. Urine scanty.

28th.—Complete stupor; pulse barely perceptible; frequent vomiting of a blue slime, like dissolved blue pill; great restlessness; moderate stool, dirty, hard, containing a worm.

29th.—Death at 5 A.M., about ninety hours after the poisoning.

Autopsy: Seven hours after death. Quiet aspect. Eyes open; no discoloration of the front part of the body; no special distension of abdomen, subsequently carmine redness of shoulders, back and hips. After sawing through the skull the calvarium was raised with difficulty and only after cutting through the dura mater on account of its very extensive and strong adhesions.

All the vessels of the dura and pia mater, one sinus lateralis and one sinus posterior, strongly injected with red blood, as also the medullary portion of cerebrum and cerebellum, and

most of the choroid plexus. No unusual quantity of fluid or perceptible disorganization in either of the ventricles; lungs redder than usual at that age. About two ounces of watery exudation in the pericardium, and about the same quantity in the pleural cavity; heart firm and of a natural appearance. Peritoneum extremely vascular. Omentum almost gone; its remainder, along with the intestines, injected with bright red blood. Gall-bladder nearly full of bile. Liver natural in its appearance, but its peritoneal covering, like that of the mesentery, strongly injected. Bladder shriveled, very small and empty; kidneys inflamed. In the stomach a pint of bluish material and the following lesions. In the cardiac portion, a black circular place, about one-half inch in diameter, whence, as from a central point, a uniform bright redness spread over the whole inner coat. The very large and numerous rugæ more inflamed than the other parts; the texture of all the coats completely destroyed, only the peritoneal coat remaining, upon washing away the disorganized parts; the whole larger curvature had externally the same appearance.—(*Idem.*)

39. Martha Wild, æt. 14 (see Case 35), swallowed only a little of the poison, spitting the greater part out. Vomiting as with the others, but less. Immediate pain in scrobiculus; no dysphagia; pulse small and irregular. No urine or stool.

27th.—Restless night; pupils dilated, insensible; pulse uncountable; toward midnight sopor.

28th.—Sopor till noon. Ischuria; pulse changeable and weak; pupils still insensible; contraction of the corrugator supercilii, with partial squinting; some appetite.

29th.—Quiet night; copious discharge of urine, general improvement. Steady improvement and recovery complete January 3d.—(*Idem.*)

40. Early in the morning of January 15th, 1815, a healthy woman about 30 years old, having recently been delivered of her fifth child, drank by mistake of her nurse, a solution containing thirty grains of sublimate. While drinking, she noticed a very violent burning in the stomach, and inquiry led to a discovery of the mistake at once. In a few minutes the physician arriving found her sitting in bed, her finger in her

mouth to excite vomiting, whereby a quantity of fluid was ejected. She complained of intolerable pain in the œsophagus and upper part of stomach, gradually moving downwards. (Emetic of Ipec.) In a few minutes she became faint. Two large spoonfuls of strong liver of sulphur solution induced violent vomiting. The remedy was repeated in the intervals of vomiting, which was assisted by warm water and chamomile tea, with some sol. absinth.

Two or three hours after the poisoning cramps set in; at first in the toes and feet, then in the hands and fingers, and subsequently in the arms and legs. Severe cramp in the right thoracic wall drawing toward the back, just below the scapula; breast greatly contracted; secretion of milk suppressed. She appeared greatly exhausted. A little later serious fainting fits, recurring at short intervals. Repeated complaint of burning, deep in the stomach, the more relieved the more she took liver of sulphur, so that afterward she made no more complaint of burning. One or two spoonfuls of mucilage given toward evening were vomited. The first night passed quietly, yet the woman seemed very much exhausted.

16th.—The entire day almost like the previous night; free from pain, with fainting and cramps and occasional sleep. The stomach refused everything. The second night disturbed by frightful dreams; distressing thoughts.

17th.—Early in the morning, formication as if asleep. About 4 or 5 o'clock, complaint of pain in the scrobiculus; borborygmi apparent to the hand upon the abdomen. Warm cloths and ether soon removed the pain. During the day she took frequently some oat-meal gruel and toast, which were retained. At evening very urgent tenesmus, with discharge of mucus and blood only, relieved by two of the usual clysters. Thenceforth all went better.

When she attempted to eat animal food, a week or so later, her teeth seemed loose and dull. About this time pieces of dead epithelium, like boiled potato skins, were discharged from the mouth and throat. A large piece of the gum came away from the socket of a tooth drawn a short time before; also a piece, the size of a pea, came from the side of the tongue.

Tongue, gums and throat continued tender during this time. No special constitutional change was left. The right breast remained in the contracted condition mentioned, the milk appearing several days later in it than in the other, when she again became a mother in 1818.—(*Edinb. Med. Jour.*, Vol. 16.)

41. H. T., æt. 20, took an ounce of sublimate in a quart of hot water for self-destruction. The act of swallowing was accompanied by a violent spasm of the glottis and a small quantity of the fluid ran out of her mouth. Within half an hour she became very sick and vomited; the vomiting continued and she threw up a considerable quantity of blood. The next day the sickness had not abated, but the hæmorrhage ceased. From this time until her death, which took place on the sixth day, she was very anxious and restless; had a frequent pulse and pains in all the limbs. To these symptoms were added on the fourth day severe pains in serobiculus, and a few hours before death complete paralysis of upper and lower extremities.

Autopsy: Outer surface of stomach and intestines natural. In the stomach, moderately distended with air, about two ounces of a thick, yellow, viscid fluid were found. On the inner surface were many dark red spots, extending over the whole length of the smaller curvature and the greater part of the fundus, but not found in the lower portion of the greater curvature. Peeling off of the villous coat not observed. The same appearances on the inner surface of the duodenum half way of its length. The lower portion of the œsophagus for about three inches from the cardia slightly inflamed, but higher up of a natural color. Liver and spleen healthy. Gall-bladder empty. Left kidney looser than common, and containing a small abscess filled with pus. Bladder empty and closely contracted. Ovaries somewhat enlarged; several hydatids in the left, but no corpus luteum in either. Heart and lungs perfectly healthy. (*Edinb. Med. Journ.*, Vol. 7.)

42. March 14th, 1848, at 6 P.M. I was called, says Mr. Waile, to a young man æt. 21 who had taken poison at 10 A.M. When I saw him he was in a condition of extreme exhaustion, and confessed having taken over a drachm of sublimate, which he had obtained ostensibly for use in his business as a jeweler.

He had eaten nothing since 6 P.M. the day before. He looked pale and anxious; surface, especially of the extremities, cold; pulse almost imperceptible; tongue very dry. No injury to the buccal mucous membrane could be discovered. The vomiting began a few minutes after the poison was taken and continued almost incessantly. The vomit was a white froth with considerable blood, covering the floor for some distance about his bed. He had also had a profuse, firm, natural looking stool. He complained greatly of pain in the gastric region, not aggravated by pressure however. On account of the incessant vomiting, as well as from fear of greater injury, the stomach-pump was not used. He was immediately given the whites of four eggs in water and ordered the same every hour.

15th, 8 A.M.—Night sleepless. He complained much of abdominal pain, especially in the gastric region, increased by pressure. He had had three stools, which, contrary to strict orders, the servant had thrown out. She said they were dark fluid. He had vomited three or four times the same bloody froth as before. The pulse had risen to 80, but was still very small and weak, with frequent intermissions. Tongue red and dry, papillæ elevated, like a ripe strawberry. (Laudanum with syr. aurant.) About 10 P.M. pulse 100 and stronger, with fewer intermissions; the skin warmer, the pain less; neither vomiting nor stool the whole day.

16th, 8 A.M.—No sleep. He complained of considerable pain and tension; neither vomiting nor stool in the night; pulse 100, strong, regular; tongue still unnaturally red, with elevated papillæ. (Castor oil.) About 9 P.M. I learned that he had slept three hours. After the oil he vomited about a quart of very acrid stuff, looking like port wine dregs, with great relief. Pulse 100, regular, strong; skin generally warm; he had scarcely any pain; no vomiting since morning. Tongue less red and somewhat moist on the edges. The young man and his friends were very sanguine in their hopes, and in fact all the symptoms were improved.

17th.—Night sleepless again with very little pain. Two fluid stools with considerable blood; no vomiting; pulse quite regular, moderately strong. Tongue had become pale and moist;

scarcely any pain in the abdomen even to hard pressure. His countenance however did not correspond with these apparently favorable symptoms. It had an anxious expression and was extraordinarily pale, with blue about the lips and *alæ nasi*. I now observed for the first time that the breathing was pretty difficult, and immediate auscultation showed the smaller bronchi filled with mucus. No pain in deep breathing. He had complained of dyspnoea two hours before my visit. He said he felt a constriction and pressure on the chest. (Blister to the chest.) At my next visit, about 1 o'clock, I found the breathing loud and rattling. He had no pain, but was evidently in extremis, as during the whole illness the intelligence was undisturbed. Within twenty-four hours he had passed no urine. For food during his illness he had received white of egg, oatmeal gruel, arrow-root with broiled meat and water. Death about 2.30 P.M.

Autopsy the same evening about 8 o'clock: Mucous membrane of mouth and œsophagus entirely normal, the chief action being visible in the stomach, whose mucous and muscular coats from the cardia out for a distance of three and a half inches were changed to a gangrenous mass, having a corroded torn aspect and a dark brown, almost black color. The mucous membrane for a considerable distance about this gangrenous portion was brown-red, but the pyloric half of the stomach, with the exception of some little red spots was quite normal. In the duodenum and the rest of the intestinal canal nothing abnormal was perceived, except a slight congestion of some of the *valvulæ conniventes* in the jejunum and ileum. The bladder contained about half an ounce of urine. Cavities of heart empty. Blood did not seem to be coagulated. Lungs crepitant throughout. The entire respiratory mucous membrane in larynx, trachea and bronchi as far as could be seen was in a condition of intense congestion and varied from dark red to purple. The smaller bronchiæ were filled with a frothy, bloody fluid. As no disturbance of the cerebral functions had occurred the brain was not examined. (*London Med. Gazette*, 1848.)

43. A man, *æt.* 27, took, with suicidal intent, sixty to seventy grains sublimate dissolved in water, and came into hospital May 24th. Soon after taking the poison he observed a strong

metallic taste in the mouth, with a peculiar smell, then desire to vomit and soon afterward vomiting, with a sense of constriction in the throat and trembling of the feet. In stomach and œsophagus he had no severe pains whatever. The vomiting brought up first food, then mucus, and ceased some hours later after a physician who was called in had ordered an emetic. Soon after that he was brought to the hospital where white of egg and water was prescribed.

The next day the feeling of constriction in the throat changed to a severe pain, with an unpleasant tickling, coming paroxysmally and lasting only a few seconds, during which a convulsive cough with great anxiety appeared. The cough was a throat cough, *i. e.*, like the cough occasioned by putting the finger in the throat. During these paroxysms of coughing, repeated at short intervals, expectoration of a bloody mucus and feeling of suffocation with extreme anxiety.

May 26th.—Evidences of enteritis with severe colic, tenesmus and frequent loose stools (at least twenty in twenty-four hours), of a slimy liquid, with considerable blood. Stool very painful, so that he had to cry out. Abdomen not distended. Nothing remarkable about the urine. Pulse 86.

Gums swollen, and all the signs of a severe mercurial stomatitis, of which, for the sake of brevity, we mention here only a considerable swelling of tongue, velum, uvula and pharynx; upon the latter, gray, fatty pseudo-membranous masses are formed. Some stupor and disturbed intellect.

May 30th.—Pulse 72. He suffers less, but there is still blood in all the stools, which, however, are not so frequent.

June 2d.—The inflammation of mouth diminished and circumscribed; the gray membranes begin to come off. Swallowing still painful; face pale; only slight traces of blood in stools.

June 4th.—No more bloody stools. Pulse 80. He is better generally, getting up and walking in the garden; very pale. For some days he has been taking a solution of Potassii carb.

June 5th and 6th.—Condition the same, except increasing weakness.

June 8th.—Pulse 88. Extreme weakness and very pale color.

Yesterday and to-day he had six stools, coming after eating, of yellowish fluid, without blood. Since yesterday numerous, reddish-gray, round, ecchymotic spots, not disappearing on pressure, have made their appearance over body and limbs, especially in the sacral region. Urine since yesterday dark brown, albuminous. Face very pale. Blowing with the first sound of the heart, heard at the base. Hiccough with every movement of the body.

June 9th.—Death, without convulsions or agony.—(*Monit. de sciences med. et pharm.*, 1859.)

44. R. M., æt. 28, mother of three children, took, in consequence of a quarrel, a drachm of dry sublimate, at 7 o'clock of the 9th of March, 1818. Anderson found her in bed, about 8 o'clock, her head raised, and the saliva flowing profusely from her mouth. Face swollen, very red, and covered with cold sweat. Pulse 128, very weak and irregular. Skin pretty hot; breathing very difficult. She indicated the epigastric region as the seat of her pain. Abdomen swollen, very painful to touch. Twenty minutes after the poisoning, and upon Anderson's arrival, she vomited. Ten minutes after 8 o'clock syrup of sulphur of zinc, with speedy effect, followed by much warm water. Vomiting continued some time. She made it understood that her throat felt constricted: two ounces of starch boiled in a quart of water were given, a teaspoonful every five minutes; she would not take it more than milk-warm. Eructations and vomiting, almost amounting to cramps. Two drachms of sub-carb. potass. dissolved in a quart of water, a teaspoonful alternately with the starch.

About 9 o'clock she seemed more sensible; could speak and answer questions tolerably correctly. Complains of dreadful burning pain in the throat and stomach; anything more than milk-warm was intolerable. Pulse 120, not so irregular. Continued the previous directions, with warm fomentations to abdomen.

11 o'clock.—Continued severe pain in throat and abdomen, the latter more swollen. She had vomited four times. Stop the potash solution, continue the other treatment.

Tuesday, 8 A.M.—More composed. Pulse 112; too tense, oc-

asionally intermitting. Sleeplessness, frequent vomiting; abdomen less swollen. The burning pain continues; seems very much exhausted; no stool in these two days. (Clysters, and the boiled starch.) About 11 o'clock, almost dying. The whites of two eggs in cinnamon water every half hour, no more starch water. 2 P.M., quieter; has vomited only twice since. Pulse 104, not so tense; decided ptialism; three stools with tenesmus. (Laxative clysters with the whites of two eggs, beside the cataplasms.) About 5 o'clock, very weak; the abdominal pain much alleviated; the tenesmus gone.

About 10 o'clock, better, but the vital powers much depressed. No more vomiting. Treatment continued.

Wednesday, 10 A.M.—Good night, decided amelioration of the burning pain in throat and stomach. Two stools during the night without tenesmus; frequent starting in sleep. Pulse 100, soft and natural. More complaints of great vertigo and weakness; breathing deep and slow. Some weak soup and infusion of China, two teaspoonfuls three times daily. Will not take any more eggs since last night; has lost thirty-two pounds weight. Steadily improving; she was out of bed and convalescent Friday.

About ten days afterward she complained of vertigo and general weakness, especially in the joints, so that while looking well and with a good appetite, she could scarcely walk.

The matter first vomited was carefully examined and by the copper test found to contain a quantity of dissolved sublimate. (*Edinb. Med. Journ.*, Vol. 14, 1818.)

45. A gentleman, æt. 50, took over a drachm of sublimate in a quantity of water Feb. 27th at 8 A.M., and immediately began to hawk and complain of constriction with burning in the throat and dysphagia. (Oil and Zinci sulph. ʒss.) After two hours Blacklock found him hawking, discharging always a mouthful of mucus and blood, and having just passed a bloody stool, preceded by two natural ones ascribed to Aloes taken the previous evening. Pulse 120. Tongue white and moist; very disquieting hiccough. Thus the whole day. Toward evening hawking and dysphagia less frequent and severe. Face a little puffed.

Feb. 28th.—Frequent and copious bilious vomiting and purging; a regular cholera. Pulse over 100 and weak. Face puffed and fuller than usual. Thirst so intense that every two or three minutes, in spite of the pain in swallowing, he called for milk. Very disquieting hiccough. Ischuria, even with the stools, since the poisoning, and no desire to urinate. Neither fulness nor pain in the abdomen except in the scrobiculus, where slight pressure causes pain.

March 1st.—Continued vomiting of bile, and occasionally curdled milk. Diarrhœa stopped. Complains of burning in œsophagus and rectum; numbness and loss of feeling in extremities. Pharynx dark red, painful to external pressure. Pulse 100, soft and weak. Inclination to sleep, which is disturbed by the hiccough; continued ischuria. Abdomen soft and compressible, and not painful to pressure except in the scrobiculus.

2d.—As yesterday; a regular, though scanty stool.

3d.—Burning in œsophagus and rectum, thirst, dysphagia, and continued suppression of urine. Less frequent hawking. Bilious discharges up and down. Occasional sleep in spite of the hiccough recurring regularly twenty-six times a minute. Face puffed. Pulse 100, soft and weak. Tongue white and moist.

4th.—Breath offensive, but the mouth not at all painful, and no salivation. Stiffness of the arms added to that of the legs, in lesser degree however. Urine still suppressed.

5th.—Pulse imperceptible at the wrist. Complains of dyspnoea, and desires to be raised up in the bed; continued hiccough. Vomits now and then a little bile, can not swallow. Death about noon. Autopsy not permitted. —(*Edinb. Med. Jour.*, Vol. 36, 1831.)

46. Johnstone tells of a woman who attempted to swallow two drachms sublimate in substance; but was unable to get it down by reason of the constriction of the œsophagus provoked by it. She died of mortification of the throat within six days. (*Essay on Mineral Poisons*, p. 52.)

47. A child, a year and a half old, went unobserved into the workshop of a goldsmith, and there swallowed about eight grains

sublimate. He soon got bellyache, the abdomen swelled, and copious salivation set in. The doctor ordered an emetic syrup with quince juice, which caused copious vomiting; he gave him to drink a quantity of goat's milk with a decoction of plantain. The swelling and pain in the abdomen subsided, and the child slept in the night immediately after the poisoning. Seventy-four days later, the child was threatened with consumption, and the same doctor decided to use the goat's milk again with a decoction of mallow flowers and quince seeds. He reports the child pretty well at the time of writing.—(*Mangeli biblioth. med.*, IV, 2, page 455.)

48. A child, æt. 2, got ten grains sublimate. Soon after taking the drug a cold sweat broke out, followed by vomiting of mucus, and soon after, pure blood; then rattling in the chest, hoarseness, and about 5 P.M., death; no benefit having been derived from the means used.

Autopsy: The finger nails, and hands also, were blackish; the whole abdomen of a greenish-blue color; mouth full of white blisters and vesicles. The abdomen was distended by the swollen intestines; upon opening which a yellow water ran out, staining the prosector's hands the same color. This color was also found to a marked degree on the pylorus, the intestines and especially the colon. On the left and above, the stomach was destroyed so that nothing remained but a blister-like membrane.—(*Wedel, dissert. de Merc. dulc.*, p. 22.)

49. Jan. 23d, 1818.—A short girl, of robust constitution, after having eaten bread and cheese and bacon, took, about 11 P.M., a drachm of Sublimate dissolved in beer. Some minutes after, the people of the house found her resting on her knees, complaining of a sense of burning, extending from the scrobiculus to the throat and mouth. This was soon followed by vomiting of her supper, mixed with tenacious mucus. Half a drachm of Zinc. sulph. was administered, and white of egg in lukewarm water, and oatmeal gruel were given her; the emetic was repeated in half an hour. After she had taken the white of egg the vomit became flocculent, like curdled milk.

About 3 A.M., bilious and bloody vomiting. She had three extremely offensive, brownish stools; pulse 100, small and con-

tracted, pain diminished. She lay in a heavy sleep, wakened by recurrence of the pain. An expression of anguish on the face. About 9 A.M. a laxative julep with oil, soothing fomentations to the epigastrium, oat-meal gruel, and white of egg ordered. She seemed to feel better. At evening the pain in the stomach was less intense, but the throat was inflamed and very painful.—(Soothing gargles; a clyster every two hours.)

23d.—At 3 o'clock. No stool yet, and no urine since the morning of the day before. Neither tension nor increased sensibility of abdomen. The catheter was introduced with great difficulty, on account of the inflammation of the bladder and urethra, and a few drops of urine came away.—(Laxative, diuretic salts, and clysters.)

24th.—Alvine discharges. No urine obtained by catheter. Less pain in stomach. Inflammation of throat, feeling of constriction, pain in jaws, slight looseness of teeth, and some salivation.—(Mucilaginous drinks.)

25th.—She sat by the fire feeling better, but very weak and exhausted; frequent very offensive stools; teeth very loose; profuse salivation; extremely offensive breath. Not much pain from pressure on abdomen. Catheter brought no urine. She became a dark blue color, which was removed by vigorous rubbing with chalk. Thenceforward she became steadily weaker and died 90 hours after swallowing the poison. As the autopsy was not performed till three days later, the effects could not be recognized with certainty. Extreme fetor, abdomen greatly swollen, of a dark color; mouth full of tenacious mucus; face horribly disfigured.—(*Fothergill's Journal*, March 1819.)

50. Feb. 8th, 1844, a man 40 years old was received into the hospital supposed to have swallowed a drachm of sublimate the previous evening; but, as he afterward said, he only held it for a while in his mouth and then spit it out. A part, however, had undoubtedly been swallowed. A surgeon ordered him an emetic and white of egg.

Condition: Extreme weakness and exhaustion; pulse 120 and small; extremities cold and livid; frequent light chills; mouth much swollen; lips purple and swollen; copious discharge of saliva; throat and neck, especially on the right side, very much

swollen; dysphagia; epigastrium and entire abdomen painful, especially to pressure; excessive thirst; tenesmus, bloody, slimy stools; urination painful and by drops; pupils contracted. (Turpentine clysters, followed by starch and laudanum injections. Castor oil with laudanum and mucilage. Blister to the epigastrium. Alum gargles.)

Feb. 9th.—Pulse 80, strong; body warm; tongue dry and red; mouth less swollen; dysphagia still very great; repeated vomiting of an acid, greenish water. Only two natural stools immediately after the turpentine clysters. Abdomen easier; copious, painless urination; no salivation, no mercurial fetor. (10 grains Magnesia, and gruel.)

Feb. 10th.—Condition generally better; four natural stools; swelling and pain in throat greatly relieved; lymph exudations on the buccal mucous membrane, as far back as the tonsils; the epithelium denuded in two places near the lips. (3 drops Acid hydrocy., every three hours.) At evening very violent vomiting with dysphagia. The next day the pains were gone; the exudations began to loosen; the tenesmus with bloody mucous stools returned; also the pains in urinating. Pulse very soft, and he feels much weaker generally. (Blister, 4 oz. wine.)

Feb. 12th.—The serious symptoms of the day previous increased. (Clysters and Opium.)

Feb. 13th.—The vomiting had ceased, but the strength was greatly reduced by the watery stools, and the blistered place had a gangrenous look. (10 oz. wine, 4 oz. whiskey, poultices to the blistered place, clysters.) Death at 8 o'clock the next morning.

Autopsy 36 hours after death. Tonsils, especially the right, pulpy. On the under surface of the tongue, as well as on the mucous membrane of œsophagus, remains of the exudate, which at the lower portion of the œsophagus, was plainly organized, but ceased abruptly at the cardia. The entire inner coat of stomach, especially the left upper portion, very much congested and covered with a greenish slime, but nowhere eroded. From the ileum down was in the same condition, and the farther down the more intense the redness; the lower part of the rectum almost entirely black. The teeth were firm, the roof of mouth

not eroded. Bladder contracted, and in two places dark red. The intestine was chemically examined by Prof. Rainy, but no trace of sublimate found.—(*Monthly Journal*, May, 1844.)

51. A solution of sublimate given to a little girl by mistake for water, produced symptoms immediately. Vomiting, convulsions, thirst, and fever; still the child recovered.—(*Jac. Magneti Biblioth. Med. Pract. Tom.*, IV., p. 466; 1739.)

52. T. W., a strong man, 28 years old, took, Feb. 10, 1843, at 10 A.M., two drachms of sublimate in coarse pieces which he chewed and swallowed, and afterward drank about a pint of water. Soon after that a doctor gave him four eggs. He vomited and a piece of sublimate half as large as a nut was found in the chamber, which, it was supposed, had not been swallowed. Brought into the hospital soon after, he exhibited great prostration, cold extremities, natural respiration, pulse almost imperceptible, tongue and lips swollen. He was sensible (?) and complained of constriction in the œsophagus. He got the whites of four eggs. Two P.M., increased swelling of lips and gums. Beginning salivation; pain along the œsophagus to the stomach, causing intense dysphagia. Yellow masses with blood were expelled by several paroxysms of vomiting. Some pain in abdomen; cramp in the lower extremities, pulse small and weak, tongue white and the cavity of the mouth almost full, the skin somewhat warmer. (About two pints of milk and the whites of 24 eggs.)

Feb. 11th.—Violent hiccough during the night; pain in the stomach worse; the swallowing more difficult; headache; several evacuations up and down, the latter of a green color. Feet very cold; the entire skin yellow.

Feb. 12th.—Skin still very yellow, pulse much contracted; swelling of the lips diminished. Evacuation, upward greenish, downward dark colored, mixed with blood. Stomach region very painful; swallowing still difficult; extremities warm.

Feb. 13th.—Swallowing goes better, but there is still a burning in the œsophagus. Pulse like yesterday. Has passed no urine since his admission. Some sleep last night. Hiccough continues. Pupils contracted. Extremities cold. Several stools,

streaked with blood; one or two consisting entirely of blood and mucus. Tongue cannot be protruded yet.

Four P.M. Some delirium, increasing up to evening.

14th.—Six A.M., breathing rattling; facial muscles paralysed; toward noon he seemed to have a great retching. The ability to speak was lost, and gradually consciousness also. Since last evening no stool, and no urine till death at 3 P.M.

Autopsy, 22 hours after death. Body rigid throughout. No signs of decomposition (atmosphere cold and dry). Peritoneum healthy, containing about an ounce of bright yellow fluid. Inside the stomach, about four inches from the pylorus on the greater curvature, an inflamed place the size of the palm of the hand. The mucous membrane was very injected with red blood and showed throughout signs of inflammation. Of the slate-gray color, sometimes seen, after sublimate poisoning, there was nothing; nor any appearance of erosion or ulceration. Duodenum and jejunum healthy. In the lower two-thirds of the ileum there was inflammation of the mucous membrane, which from the cœcum on was more considerable, with at last many small ulcers. Liver large and full of blood; gall-bladder contracted, almost entirely empty. Spleen normal as to size, full of blood and firm, its peritoneal covering thin and adherent. Pancreas healthy. Kidneys of normal flexibility, the cortex showing many little red points, especially toward the infundibula; apparently from incipient inflammation. On the back of the right kidney was a cyst the size of a marble, filled with clear fluid. Bladder very much contracted, containing about $\frac{1}{2}$ oz. of turbid urine.

Mucous membrane of œsophagus showed an inflammatory redness but was otherwise normal. Old pleuritic adhesion in the chest; lung substance œdematous, rather firm and doughy; the base of the right lung inflamed. Bronchial mucous membrane universally inflamed and covered with frothy mucus. Bronchial glands much enlarged. Pericardium contained six drachms of clear yellow water. The heart seemed healthy, only somewhat smaller than natural. Cranium not opened. (*Guy's Hosp'l Reports*, 2d Ser.; 11, 1843.)

53. At the autopsy of an epileptic, poisoned with $\frac{1}{2}$ scruple

of sublimate and dying ten days after, the œsophagus was found healthy, the stomach inflamed; its mucous membrane congested and considerably softened; and some extravasation of blood. The small intestines were very vascular; the cœcal end of the ileum almost gangrenous; cœcum very much inflamed, partially gangrenous; the sigmoid flexure ulcerated and much inflamed. Lungs engorged and the left half inflamed.—(*Lancet*, 1845; Vol. II, No. 26.)

54. One morning a good portion of sublimate, in syrup, was given to an invalid woman in place of her customary medicine. She felt at once an intense acridity in mouth, palate, and œsophagus, desire to vomit, and blindness. Though she put her finger in her mouth and vomited, she soon got the most intense pain in the stomach and intestines; burning deep in the abdomen; complete ischuria; offensive breath; eroding ulcers in the mouth, palate, and gums, all the teeth loosening; ghastly look; frequent wandering of mind; entire absence of sleep. Ordered: A mixture of butter and oil to be swallowed, and the palate tickled with a feather. The vomit was so hot and acrid that she felt a burning as from fire in the throat and fauces. Clysters and many other things were ordered. The teeth became painful. For the ischuria during two days a bath and external inunction were ordered, besides other things, after which some urine was discharged with great pain. Micturition came on the fourth day.—(*Valleriola Observ. Med. Lib.*, 1 Obs.; 6, 1588.)

ACTION OF SUBLIMATE.

55. Pulse rapid and hard, without being exactly large; staring look; inflammation of eyes, which protrude from their sockets. Disfigured countenance. Swelling of lips, tongue, and throat; the lower lip very much swollen, and the inner portion so turned out that its edge rests on the chin. Salivation; insatiable thirst; vomiting; feeling of pressure in gastric region and chest; painful burning from mouth to stomach; abdomen very much distended and painful; evacuation of feces, with slime and dark clotted blood; diarrhœa; tenesmus of rectum and bladder; oppression in the chest.—(C. F. Schwarze, *Beobacht., und Erfahr. aus der Med.*; 1827, p. 322.)

56. A fifteen-year old student, on May 15th, 1874, took and swallowed a portion of a powder containing two scruples of sublimate, which had been prescribed for his father for external use. As he at once felt a severe burning, he threw away the remainder. After five minutes, repeated vomiting set in. He drank considerable milk afterward and again vomited, throwing up food which he had eaten for dinner. The violent pains in throat and stomach drove him from the garden, where all this happened, to his room, saying that he was sick, presumably from his dinner. After two hours, diarrhœa every hour, last the entire night and the next forenoon. The pains and weakness increased continually, and at noon he confessed to his mother that he had taken some of the powder.

Condition after 20 hours: Powerful, muscular body. Temperature 100.4; respiration 22. Thoracic-diaphragmatic breathing; pulse 108. Skin dry; face red; pupils alike, reacting well. The inner surface of the lower lip, the region of the frenum, base of the tongue, and velum, especially on the right side, covered with a gray-white, firmly adherent crust; mortified mucous membrane. Organs of respiration and circulation normal, as also the liver and spleen. Abdomen not enlarged but very resistant. He complains of pains in the mouth, throat, and stomach; the latter sensitive to pressure, as also the region of the sigmoid flexure. The evacuations are painless, consisting of a soft but formed, pulpy mass, light gray, with red streaks in it in considerable quantity, with much liquid. He said he had passed no urine since yesterday evening, that the fluid came exclusively from the rectum. He was perfectly quiet. No appetite, no thirst. (Magn. hyd. in water. Milk, white of two eggs)

May 16th.—Till midnight he was very uneasy and had frequent stools, afterwards slept well. About 5 A.M., stool of a lumpy, sulphur-colored mass. No urine in spite of much straining, the bladder being actually empty. Five P.M., no evacuation since morning; urged to attempt to urinate, he passed, after much straining, some thick milky drops. Temp. 99.68; resp 20; pulse 76. The pains in stomach have ceased, but it is still sensitive to pressure. The kidney region not sensitive to the

deepest, hardest pressure. Since morning he has taken emuls. ol. c. tet Opii.

May 17th.—He says he feels very well; has appetite, but swallows with difficulty. Temp. 99.32; resp. 16; pulse 76. No pain at all. For more than 30 hours no evacuation, no vomiting. Not a drop of urine. At night he had a formication all over the body. About 4 P.M. copious, normal-looking, pappy evacuation, containing two living ascarides. Feels well, appetite good, no thirst, no urine.

May 18th.—Frequent, black, loose stools after midnight. The urinary secretion has begun. Feeling of pressure in gastric region. Temp. 98.24; resp. 18; pulse 76. Abdomen flat. The crusts begin to come off in pieces from the mouth and throat. At noon he ate some milk-food with relish. At 5 P.M. a spinach-green evacuation, followed by severe pains in stomach. Cold fomentations to stomach.

May 19th.—Slept well. In the morning two spinach-green evacuations and each time urinated. Itching in the whole skin, which is quite dry. Severe pains in stomach region, which is somewhat full; the percussion tone being very muffled tympanitic. Apparently there was a hæmorrhage into the stomach. Swallowing very difficult. Extreme weakness. Temp. 96.44; resp. 18; pulse 76.

May 20th.—During the night several dark green, very tenacious stools. Urine steadily increasing in quantity, containing some albumen. Skin dry. Restless. Hiccough now and then. Pains in stomach less.

21st.—Night very restless, no sleep. The hiccough is much more frequent. Burning in chest and abdomen. The crusts have mostly come off from the mouth; the spots, thus denuded of epithelium, appear as extensive, rather depressed, spots sprinkled with coarse red grains. No stool. Urine normal in quantity, containing some albumen. Pains in the mouth, and in swallowing; some pains in stomach. (Morphine.)

May 22d.—Very little sleep. Much plagued by the very frequent hiccough, so that he cannot eat and hardly speak. Temp. 93.92; resp. 18; pulse 76. Pure blood flows from the anus. Very troublesome itching in the skin. Burning in the intes-

tines; great depression. Evening: The great increase of heart's action since morning is very remarkable; there is no enlargement demonstrable. The heart's impulse is very extended, visible at a distance, and so strong, that the whole thorax, and both hypochondria, especially the left from stomach to navel, are vehemently jarred by it. Beats 76; tone, metallic-sounding, but clear. Singultus ceased at evening. Very considerable difficulty in swallowing. Temp. 92.12; respiration 18.

May 23d.—Considerable sleep during the night. Early in the morning an evacuation consisting of hard feculent masses in bloody fluid. Urine normal in quantity, containing but a trace of albumen. Hiccough entirely stopped; restless. Temp. 98.24; resp. 20; pulse 108, small. Heart's action strong as yesterday.

Evening: Has taken no food to-day. Face pale, collapsed. Consciousness, no longer quite clear. Abdomen flat. Two coffee-ground evacuations. Cold fomentations to the abdomen.

May 24th.—He has groaned the whole night through. Before midnight, a black-green, very copious evacuation, followed by involuntary urination and passage of blood per anum. Below the navel to the right, a hard swelling, the size of a lemon, very painful. Extravasated blood; the percussion tone over it dull. Restless. (Morphine.) Soon afterward he slept. Temp. 100.04; resp. 14, very deep with long drawn inspiration; pulse 112, small. Toward evening the dulness to right of navel very much increased in extent, apparently also flattened out. Unconscious, very restless, frequent groaning. Skin dry. Thermometer could not be applied, but the temperature was seemingly higher than normal. The expired air smells very plainly like spoiled meat. Heart's impulse still very strong and extended, but no more on the whole than yesterday or this morning. At the same time the pulse became steadily more rapid and smaller, and later was imperceptible in the radial, while the heart's impulse was still vigorous. Blood flows from the rectum. The jactitations became less frequent and weaker. Death before midnight. Autopsy neither desired nor permitted. (*Wiener Med. Presse*, 1874, No. 34.)

57. A woman, to poison herself, swallowed 4 grammes subli-

mate in alcoholic solution; vomited at once much blood, and only three hours later got, as antidote, a great number of raw eggs. Vomiting and bloody stools for two days; abdomen, not the gastric region, sensitive; nausea and metallic taste persistent; salivation followed.

On the 8th day death from exhaustion. Mucous membrane of stomach, and in part also that of the duodenum, inflamed, softened, and discolored by extravasated blood. The immediate extravasation of blood probably acted as an antidote; the absence of pain in the stomach being a consequence of destroyed vitality of the gastric nerves, and the reabsorbed portion of the poison diminished the affinity of the blood corpuscles for oxygen. (From Woodbury; *Philadelphia Medical Times*, July 15th, 1872, in *Jahresbericht üb. d. Leist. und Fortsch. in d. ges. Med.*, 1872.)

58. A woman, 62 years old, poisoned herself with a solution containing 112 centigrammes sublimate and recovered under the treatment with white of egg-water. During the first hours of the poisoning there was a lowering of the bodily temperature (from 99.86 to 98.24). In the urine, throughout free from sugar, there was, from the second day forward, albumen (at first 4 p.c. then gradually diminishing to a trace on the sixth day), with a great quantity of granular, oily pellicles, on the surface of which the kidney epithelium in a condition of fatty degeneration was found; also hyaline, partly fatty pellicles and numerous free epithelial cells, exhibiting the beginnings of fatty degeneration (sign of nephritis). No blood corpuscles in the urine. (*Ollivier Arch. de physiol. norm. et pathol.*, 1874, in *Jahresb. üb. d. Leist. u. Fort. in d. ges. Med. von Virchow u. Hirsch.*)

59. A shepherd in a debauch swallowed a piece of sublimate, which he had for use in washing the sheep, and which, after having been in his stomach for an hour, still weighed a drachm. In spite of appropriate antidotal and symptomatic treatment, and apparent improvement, he died on the 8th day. The symptoms, beside marked collapse, were pains behind sternum and in the scrobiculum, nausea, vomiting of blood, diarrhœa and bloody stools; hæmoptysis and hæmaturia. From the fifth day on stomatitis and inconsiderable salivation.

Post-mortem: Hyperæmia of lungs and liver, ulceration in

œsophagus, ilium and large intestines, which latter were extremely livid in color. Slate-gray color and ecchymosis in stomach. The chemical analysis showed traces of the poison in the liver. (*Virchow. und H., Jahresb. f. 1870*; from the *Lancet*, Feb. 26th.)

60. July 2d, 1860.—A farmer took 2 drachms of sublimate, which an apothecary had put up by mistake for an aperient. He felt at once an intense burning, and drank a quantity of water with white of egg, which was followed by copious vomiting. The next day at noon, when he was first seen by a physician, he complained of burning pain in stomach and intestines, and seemed in an intense degree collapsed. Twenty-four hours before his death, which did not occur until January 28, he had passed no urine.

Autopsy, January 30th: Countenance placid. Lips and front parts of body pale; sides of the abdomen greenish; dependent parts of body reddish; pupils normal; limbs rigid, scalp anæmic, brain mass firmer and paler than usual; a bluish red line along the edge of tongue; roof of mouth and isthmus faucium pale and shiny; larynx, trachea, and bronchi pretty uniformly red, the redness increasing toward the lungs; frothy mucus in the lower end of the trachea; both lungs œdematous, infiltrated with bloody serum; right heart full of dark fluid blood, the left heart almost empty. The outer wall of œsophagus congested in spots, the mucous membrane at the lower end and that of the gastric fundus loosened; at the pylorus a considerable extravasation of blood between the inner and middle coats; the first fifteen inches of the small intestine very red and thickened, but no extravasation of blood there; the inner coat of the rectum reddened and beset with extravasations of blood the size of hemp-seed, under the mucous membrane. By means of the galvanic battery, mercurial deposits were obtained from the liver, stomach, small and large intestines, as well as, though less obviously, from some ounces of blood. The deposits gave the characteristic red color upon contact with iodine vapor. (*Canstatt's Jahresb. für 1862*; from *British Review*, October 28th, 1861.)

61. A cook, 28 years old, sickened with gastricismus June

3d, 1858, for which she thoughtlessly took about $\frac{1}{2}$ teaspoonful of a watery solution (gr x ad $\bar{3}j$) of sublimate, which had been prescribed for external use against freckles. While she was swallowing it, an intense burning began in throat, gullet, and stomach, followed immediately by violent vomiting of watery, slimy masses, with severe retching; then cold feeling and formication over the whole body, especially along the spine; itching in the arms, stretching and tearing in all the limbs, with occasional convulsive shuddering of the whole body, and sometimes loss of consciousness; tenesmus of bladder. The physician, who saw her in about $\frac{1}{4}$ hour, she having meanwhile drank two glasses of milk, found her with an expression of extreme suffering, failing vision, somewhat contracted pupil, almost complete aphonia, coated tongue, craving for cold water, very painful retching and vomiting of slimy, yellow-green, and white flocculent masses of curdled milk; small hard pulse, 106; deep, oppressed breathing, and lowered temperature of the damp, sticky skin. Stomach region somewhat distended and very sensitive to pressure. Ischuria. (Leeches, followed by fomentations to the stomach region, white of egg with sugar-water; Opium.) Toward evening the pulse diminished in frequency, with some sleep and profuse sweat. The next day rather more natural expression of face; pupils normal; pulse 100; turbid urine, passage, with forcing, of normal masses of feces, mixed with watery mucus and blood; some amelioration of pain during the night. The third day almost no pain, but it returned the fourth day with metallic taste and copious sweat. Fifth day subsidence of abdominal pains, but great lassitude and severe pains in the feet. The sixth day an eruption made its appearance in the shape of pale red, seemingly elevated roundish spots, disappearing under pressure of the finger; not sharply defined itching, and in places running together like roseola, remaining four days and then going off.

After five or six weeks there were occasional dull pains in the extremities, general weakness, bellyache from the slightest cold, and heavy night-sweats. There was no salivation. (*Canstatt's Jahresh. f.* 1861, aus *Bayer ärztl. Intell. Bl.*, 1860.)

PROVINGS OF THE SUBLIMATE.

1. Masselot made the following investigation: Soon after the second dose of $12\frac{1}{2}$ milligrammes, sensation of obstruction and anxiety in the præcordia and epigastric region; then several palpitations. After the third dose, general sick feeling; some pains in the stomach; transitory colic; sensation of weakness and shuddering in the limbs; palpitations. After the fourth dose, painful pinchings in the stomach; weariness of the limbs and trembling when he rises and stands quietly; great anxiety; frequent palpitations of the heart; vague chilliness; sensation of coldness; paleness of the face; some nausea; distention of the abdomen; borborygmi; colic with tenesmus and six stools during the night. On the next day there remained only some sick feeling and less appetite than usual. Three days later the experiment was again made in the same way; the same effects were again manifested, only more intense, especially the anxiety, paleness, inclination to chilliness, weariness of the limbs and the tenesmus. In addition to this, he had several attacks of vertigo, and twice spasmodic vomiting of serous-like fluid, not preceded by nausea. It required two days before he was again in *statum integrum*, and he had no desire to make a third experiment. These doses were given fasting, or at least four hours after a meal.

2. Doctors Buchner, Gerster, Held, Nusser, Förstner, and Pernerl, proved the sublimate, on themselves, mostly in the 2d cent. dilution. The symptoms obtained are given in the following resumé: Symptoms which were observed in several provers, are marked with the initials of such in brackets. Those marked with (Ch) were observed in a woman 46 years of age, formerly a healthy countrywoman, who, on account of a pain in the throat, took of mercurial sublimate in quantity, during three years, about twenty times, so that in the whole, 2400 pills, containing in all 120 grammes of the sublimate, were taken.

General Symptoms.—Lassitude; various symptoms are aggravated when walking in the open air; better during rest; worse in the open air (Ch); during rest better; at the worst in the open air (Ch); worse in the morning, generally weak, and therefore frequently giddy (Ch).

Sleep.—Inclination to yawn and actual yawning; sleepiness the whole afternoon; sleepiness in the evening; sleep very light, frequently, at night only $\frac{1}{2}$ hour tolerable sleep (Ch). Frequently starting when falling asleep; sleep not sound; moderate sleeplessness; at night restless sleep, with frequent awaking; changing position, tossing about in bed, in the morning following great weariness and wretchedness. Dreams livid, lively, lascivious; dreams of fire and murder.

Fever Symptoms.—Coldness of the hands and feet; chilliness; shivering; attacks of chills; shaking chill, frequently with chattering of the teeth, particularly in the open air (Ch). Frequent chill at night in the bed (Ch). Chill followed by quickly passing heat; heat at night; warm sweat after chill (Ch). Moderate sweat night when waking (Ch). Offensive smelling sweat; skin dry; entire thirstlessness; some thirst; strong thirst; pulse somewhat feverish; feverish pulse; pulse somewhat frequent and somewhat large (Ch).

Sensorium.—What he says has neither the proper construction nor does he express the sensations clearly. In the evening the understanding was so weak that he several times looked at the gentleman speaking without comprehending what was said. A sort of reeling vertigo with almost entire loss of hearing, mostly about 8 P.M. when lying down, with tearing in the occiput.

Head.—Chilliness about the head. Slight congestion toward the head and face with burning in the cheeks. Dullness of the head, except the temporal regions. Dullness in the head in the upper frontal region. Dullness of the head in the temporal region. Dullness of the head, vertigo (Ch). Dullness of the head particularly over the eyebrows. Dull pain at the right frontal eminence. Sticking headache in the frontal region. Stitches in the left parietal bone.

Eyes.—On looking at objects they appear smaller and more distant from the eyes than usual. (Frequently recurring with the same prover.) Slight burning and dry feeling in the eyes. Burning in the eyes at the margin of the conjunctiva palpebrarum. Pressive burning pain in the eyes. Eyes very painful with slight injection of the vessels of the conjunctiva. Con-

conjunctiva of both eyes red and strongly injected. Photophobia when walking in the sunshine.

Ears.—Digging and stitching in the ears of such violence that he was forced to weep and cry out. (Lasting three minutes.) Imagines he can feel the pulsation of the artery of the internal ear, in the painful left ear repeatedly. Stitches in the left ear. Ears internally as if stopped up (Ch).

Mouth.—Styptic-metallic taste; astringent taste in the mouth; bitter, also slimy taste in the morning (Ch). Bitter taste of the food (Ch). Greasy, scraping taste in the mouth. Dryness of mouth, fatty sensation, and nauseousness in the mouth; running together of water in the mouth. The gums of the last molars began to swell, with burning pain. Toothache tearing from the orbital region toward the jaw.

Pharynx.—Contraction and raw feeling in the throat. Throat raw. Scraping rawness in the back of throat frequently necessitating hawking. Pain in the throat, at times in the uvula, not increased by swallowing. Complaints in swallowing. Pain in the throat particularly after swallowing dry bread (Ch). Cicatrices in the fauces only a short distance from the uvula.

Œsophagus.—Stitches in the œsophagus as if a particle had lodged there, worse when swallowing.

Stomach.—Want of appetite. Burning and heat, with contractive pain in the stomach. Burning and pressure in the stomach. Slight burning in the stomach (G.II.) Acute stitches in the region of the stomach. Troublesome pressure in the stomach. Frequent eructations of air; nausea, loathing. Inclination to vomit (H.P.).

Intestines.—Contractive pain extending from the stomach through the intestines. Peculiar bruised sensation in the abdomen, especially in the cœcal region and transverse colon, painful on pressure as if bruised. Abdominal pains, pinching in the abdomen. At times, pinching in the abdomen without distention, relieved after passage of flatus (Ch). Anxious and uncomfortable sensation in region of bladder like before a stool, not painful. Soft stool. A number of watery stools with pains in the abdomen. Bilious stool with violent abdomi-

nal pains and troublesome tenesmus. Two soft clay-yellow stools. A liquid, yellow, painless stool with frequent tenesmus. Violent burning in the anus, with the stool (Ch). During the day, firmer and more scanty stool than usual. Unusually profuse discharge of flatus.

Region of Liver.—Slight stitches in region of the liver.

Urinary Organs.—Urging in the urethra with scanty urination, later irritation with full bladder, sensation of fulness remaining after evacuating the bladder. Burning at the mouth of the urethra. After urination slight stitches in the fore-part of the urethra and as if in the sphincter ani. Burning stitches in the forepart of the urethra after coitus. Violent itching at the mouth of the urethra, changing during urination to smarting, with several stitches through the whole urethra. Before urination, considerable burning. Urine scanty, red, with brick-colored sediment. Urine pale yellow, somewhat cloudy, with trace of mucus flakes; after standing, a slight, pale grayish sediment with whitish covering; the urine, after standing, smelled strongly ammoniacal (Ch).

Sexual Organs.—Very violent erections during sleep. Violent erections and strong sexual desire. Late, slow, seminal discharge during coitus. Fine but painful stitches in left testicle. Fine stitches in the left testicle.

Respiratory Organs.—Coryza. Severe irritation to cough, arising at the larynx, toward evening. Very great hoarseness (Ch). Great irritation in the larynx. Dry cough. Frequent attacks of sickly cough (G.H.) Pressure in the chest. Transient fine stitches through both sides of the chest after rising. Several stitching pains in the lower right chest. Stitches in upper left chest when breathing deeply. Stitches deep in the upper right chest, scarcely increased on deep breathing.

Heart.—Congestion to the heart and anxiety.

Skin.—Itching burning and fine stitches at various parts in and under the skin.

Lymphatics.—Peculiar pressing pain in the inguinal glands of the right side, as if the glands would swell. Sensation as if the glands of the left axilla would swell, with frequent transient stitches therein.

Muscular System.—Itching stitches in the muscles of the right eyeball. Burning stitches in the middle of the right side of chest, as if in the muscles. Itching stitching pain in the muscles of the right lower costal region. Pinching stitches as if in the muscles of the upper abdomen. Peculiar contractive twitching pain of several muscular fasciculi, at the inner side of the rectus abdom. dext., in the umbilical region. Tension near the left scapula, to the outside. Jerking contractive pain in the muscles of the right palm. Stitching pain in the muscles of the dorsum of the hand and extensors of the feet. Stitches in the muscles of the lower extremities. Twitching of single muscles of the calves. Rheumatic pains in the lower extremities as from needle stitches.

Bones.—Pain in the head like a drawing in the periosteum of the skull. Tearing in the bones over the left eye, near the root of the nose and on other bony parts. Tearing in the left malar bone. Sensitiveness of the left lower maxilla to touch. A kind of tearing in the middle of the sternum after midnight. Violent tearing pain in the lower right costal cartilages. Drawing in the limbs, running as if along the bones, evenings. Tearing at the upper part of the inner border of left scapula, as in the bone. Tearing in the left meta-carpal bones. Acute tearing in the bones of the metacarpo-phalangeal articulation of the left index, ring-finger, and thumb. Tearing posteriorly in the right hip-joint. Stitches in the hip-joint during rest, which pass off during motion. Tearing in the head of the left femur toward the outside. Drawing pains in the tibia. Scarcely perceptible drawing toward the tibia.

GENERAL EFFECTS OF THE SUBLIMATE.

A strong dose of the sublimate excites the following symptoms:

Acrid, astringent, unendurable taste. Sensation of constriction and burning heat in the throat, which soon becomes violently inflamed. Then anxiety, burning pain in the mouth, pharynx, œsophagus, and particularly in the stomach and bowels; nausea; violent straining with profuse vomiting of variously colored but often blood-streaked, or with considerable blood-mixed tena-

cious substance. Diarrhœa with violent tenesmus; at times dysentery; hæmorrhage from the bowels. The temperature of the abdomen is considerably increased; abdomen becomes so sensitive that slight touch as well as motion of the body excites severe pain. The evacuations both up and down are more copious than from other metallic poisonings.

Following this, the first stage, we have a second, in which the same symptoms continue, and in addition thereto is great lassitude; the heart-beats become slow and continually weaker; the pulse thread-like, contracted and frequent; violent thirst torments the patient; respiration becomes slower and difficult; the skin cold and covered with sweat, while the face becomes red and swollen. To this are added fainting, general insensibility, which almost always begins in the feet and is so severe that the skin of the extremities can be pinched without being noticed by the patient. At times spasms or troublesome singultus set in; the body is covered with icy-cold sweat, and death is not long delayed. Generally the urine is decreased, at times bloody, sometimes even suppressed for several days prior to death. At times the urine is not affected particularly when the patient drinks a great deal. Painful erections (Orfila), also burning pains in the urethra (Buffini) have been observed. In general, the mental faculties remain undisturbed to the last.

The careless and continued internal and external use of small doses of the sublimate, cause continued colicky pains and habitual vomiting; the salivary glands swell and become very painful; saliva increased, sharp, acrid, and offensive; the tongue and gums swell, become covered with very painful and corrosive ulcers; the teeth begin to turn black and loosen, they fall out, and are frequently followed by the bones of palate and maxilla; the pharynx is swollen and red, and violent pharyngeal troubles set in. The breath becomes offensive; the face and whole head swells, from which swallowing and breathing becomes difficult. Cardialgia; dyspepsia; diarrhœa; dysentery; dyspnœa; hæmoptysis; dry cough with pains in the chest; chronic bronchitis; pulmonary consumption; exanthema; violent pains in the muscles, tendons and joints; trembling of the

limbs; paralysis; tetanus; continued fever; marasmus and death may result from the improper use of the sublimate.

The sublimate combines with the albuminous particles in the tissues, whereby corrosions and even scaly formations may be caused. This so-formed mercurial albuminate being soluble in alkaline and acid liquids, accounts for the passage of the sublimate into the blood. From this arises the characteristic poisoning even if it is only applied externally. If it enters the circulation, it afflicts first the heart and then the intestines. That the action of the heart, which from investigation on animals is demonstrable, does not depend on the nervous system, is evident by the inflammation and disturbance of the circulation during life. Its action on the intestines and particularly on the mucous membrane around the pylorus and on the rectum, is, no doubt, owing to inflammation.

Secondarily, it acts on the nervous system. The lungs also are affected. Through long continued use, it has frequently brought on hæmoptoë and pulmonary phthisis, as Brambella, Langrois, Gertanner, Quarin and others have shown.

With more chronic poisonings, the first peculiar effects of the quicksilver are manifest in the mouth.

The sublimate is eliminated by the urine, saliva, feces. By-assan, by personal experiment, found that by ingestion of two centigrammes of sublimate, he could obtain electrolytic evidence of quicksilver in the urine after two hours, and in the saliva after four hours. After twenty-four hours no more quicksilver could be discovered. In the sweat it could not be detected. Later a portion could be found in the fecal matter.

Mayençan and Bergeret found, after a single dose of one centigramme of sublimate, quicksilver in the urine within twenty-four hours, but not any on the second day. From continued daily use of the same quantity for ten or twelve days, there was, during the whole time, and for from two to five days after ceasing, quicksilver discoverable in the urine.

With animals in whom sublimate was hypodermically injected, quicksilver was found after half hour in every organ, but most in the liver and kidneys. Less in the muscles, brain,

bones, and blood. The after elimination through the urine, in non-fatal cases, continued about four days.

ANATOMICAL CHANGES PRODUCED BY THE SUBLIMATE.

Soon after death the body shows the following signs of putrefaction: The finger-nails and the hands are blackish. The mucous membrane of the mouth, tongue, uvula, palate, epiglottis, pharynx, and œsophagus is inflamed. Scurfs, erosions, thickening, softening, ulceration, ecchymoses, in many cases even gangrene, are seen.

The epiglottis is reddened; at times there is œdema of the glottis; gelatinous exudation; the tracheal and bronchial vessels are greatly injected, when the signs of inflammation are not there. The stomach is inflamed, either entirely or in spots brick-red, and we find here and there ecchymoses, particularly on the folds of the mucous membrane; erosions and gangrenous destruction of the mucous membrane; these effects are more marked at the cardiac and pyloric regions. Perforation of the stomach is found but rarely. All the vessels of the stomach are strongly injected and appear black. The contents of the stomach are not seldom mixed with blood or sanguinolent mucus.

The mucous membrane of the small intestines is entirely, or in spots, covered with bloody mucus; not seldom entirely or in spots strongly injected and red; at times spots eroded, softened, ulcerated, or gangrenous. The rectum is usually inflamed. In the omentum are many blackish ecchymoses. The peritoneum is occasionally inflamed. The pelvic cavity receives at times a serous exudation. The liver is full of blood. In the heart we find one or more blackish or reddish spots. Larynx and trachea as well as the bronchi are hyperæmic. The lungs are at times filled with blood, red in spots, œdematous, or inflamed. The brain as well as its membranes are at times found spotted with blood. The ventricles of the brain contain, in some cases, clear or sanguinolent serum. The sympathetic is often found inflamed (Swan). The kidneys are, in many cases, enlarged and inflamed.

CALOMEL.

Toxicological Effects on Animals and Man.

Majerne first brought this preparation into notice about the middle of the seventeenth century, and called it Kalomelas, in honor of the negro who assisted him in its preparation. Well-nourished animals which received a grain of Calomel, followed by an additional grain each day, had, after death, complete fatty degeneration of the kidneys; the swollen cortical substance yellow, contrasting with the red medullary; the uriniferant tubuli were filled with fat globules.

1. Three years ago, a girl, *æt.* 12, somewhat backward in her growth, but otherwise healthy, received such quantities of Calomel for inflammatory ventricular hydrocephalus, as to cause copious salivation and an ulcerated mouth. Little attention being paid to this, the inner surface of each cheek became adherent to the upper and lower gums, and the mouth could not be opened wider than to admit a flat teaspoon between the teeth.

2. A hale and hearty man who, for a chancre, had received Calomel continually to salivation, got jaundice.

3. Duncan saw Eczema merc., as a result of two grains of Calomel, in a girl, *æt.* 12; Alley saw the same in a 7 year old child, also after two grains.

4. Hoffman reports two cases of death in two children, aged 12 and 15 years, from fifteen grains of Calomel.

5. In another case, half an ounce of the same substance caused vomiting, burning in throat, about twenty stools per day, prostration and stupor, followed by death.

Hahnemann relates the following case of poisoning by Calomel.

6. A young man with gonorrhœa and a small chancre, received at the hands of a surgeon an enormous quantity of Calomel, which, besides excessive salivation, caused violent hectic fever, frequent night-sweats, tearing pains in the limbs, trembling, and large pustules all over his body. These were again treated with Mercury (for they were considered symptoms of syphilis by the quack) and grew into large and deep ulcers,

several of which were one and a half inches in diameter, surrounded by inflamed raised edges, and covered with a lardaceous surface. The worst were the ulcerations in the pharynx, about the posterior nares, on the tonsils, soft palate, and uvula; it seemed as if the ulcer threatened to devour all the soft parts; from the mouth and nose issued bloody pus, he could not articulate audibly, was emaciated and exceedingly weak. All remedies tried were without avail, until I administered ten grains of Hepar sulph. in twenty-four hours, which wrought an immediate change for the better, so that the other remedies, vitriol, for the putrid suppurative fever, and nitrate of silver in solution, for the foul buccal ulcers, did quick service. He was soon able to go into the open air, which gave opportunity to ventilate his room. This course was pursued with advantage for several weeks, and he had almost recovered when he took a cold from exposure to rough weather, and a fever, which compelled him to remain in the house. Without my knowledge ventilation was discontinued. He rapidly fell back into his old troubles; the ulcers in the fauces and in the rest of the body broke out with renewed violence; even the glans penis became affected in several places (though not in the spot where the previous chancre had been) by phagadenic ulcers. The fever, the night-sweats, the rheumatic pains and the ptyalism were renewed, and increased in severity daily. I prescribed everything that had done good before, but without success; within a few days he stood on the brink of the grave. He asked for nothing, swallowed frequently, did not know his friends, and could scarcely move. At this point it came into my mind that the air in the close room, probably laden with mercurial vapors, was penetrating his body and thus renewing the symptoms. I ventured to prescribe three grains of Hepar sulph. every hour, and with such good results that after twelve hours I already noticed some improvement. This, and the other previously named remedies, gradually gave him renewed life and health. I did not, however, omit to keep a solution of Hepar in the sick-room for several weeks, with the intention to neutralize by its exhalations the mercurial vapors.—(Hahnemann's *Unterricht für Wundärzte*, etc.)

7. A young man informed A. that he had a highly sensitive skin, which would not bear Mercury. Once when a purgative was indicated, A. prescribed a powder containing Jalap and four grains of Calomel, which was followed by general erythema. Before the remedy had time to act on the alimentary canal, the erythema made its appearance in the region of the genitals, and spread from thence upwards; later, downwards, covering the whole body in twenty-four hours. The skin was highly reddened as in scarlatina, and somewhat tumefied, but without pain, or increased heat. Neither was there any fever. The tumefaction was greatest about the head and neck, but not at all marked; the discoloration was bluish-red, which gave to the man's face an expression of anger, even of rage. The man was otherwise well, and this expression contrasted strangely with his quiet temperament and cheerful mood. The phenomenon has fully disappeared within two days, leaving those places last on which it had first appeared.—(Caspar's *Wochenschrift*, 1837, No. 51.)

8. A woman, æt. 50, had a severe fright with anxiety, occasioned by a conflagration. Shortly after she felt a pressure in the stomach, after eating; this gradually grew worse, until she was in the following condition: Extreme emaciation and prostration; she could but seldom leave her couch for an hour at a time; her appetite was tolerably good, but she could retain neither solids nor fluids; cold nor warm things; but vomited up things shortly after partaking of them; they caused severe, dull pain; pressure and cramp in the stomach and soon came up. Stool once in four to six days; single hard pieces with some mucus. No salivation. Pulse soft, with a doughy feel; sluggish, 50 in the minute; urine clear and straw-colored. After the successful administration of anti-spasmodics, the patient received thrice daily one grain of Opium and two grains of Calomel. In five or six days there was an amelioration in her symptoms, but she took the remedy more frequently. On the seventh day a severe chill, lasting fifteen minutes, followed by fever, headache, thirst, loss of appetite; small hard pulse, 75 in the minute; dyspnoea; respiration neither frequent nor short. The powders were omitted, and a mitigating emul-

sion was ordered. On the following day, the fever had increased still more; the throat was swollen internally and externally; likewise the tongue and gums, the former nearly filling the whole buccal cavity. The gums, fauces, and tongue, were thickly covered with apthæ, and coated with copious thick slime. The teeth remained firm, and there was not a trace of pytalism; motion of the jaws was very painful, and she could scarcely swallow. Constant nausea, without being able to vomit. Urine pale, red, and clear. The whole body was covered with dark red patches, of various sizes, confluent in some places. On the inguinal regions and on the inner thighs, the redness was darker and more uniform, causing violent burning. Constant sighing and tossing about, cannot rest a minute in one place. On the ninth day, there sprang up a large number of vesicles on the reddened portions of the skin, which soon filled with yellowish lymph. No treatment except luke warm injections into the mouth, and the patient gradually recovered. As the inflammation and swelling in the throat diminished, swallowing became easier, the exanthem dried up, and the epidermis scaled off. Appetite returned, and with the mercurial symptoms also disappeared the old stomach trouble.—(*Hufeland's Journal*, Vol. 56, 1823, Kahleis.)

9. A girl, æt. 19, suffered from a very severe attack of inflammation of the lungs. Repeated blood-letting was practiced, and in from five to eight days she received a two grain dose of Calomel every two hours. On the ninth day, convalescence clearly commenced, but on the tenth appeared erythema mercur. In the *regio iliaca sinistra* pustules with sharp points and circumscribed redness, had sprung up, which caused violent burning pain. The eruption commenced in isolated spots, the size of a pea; afterwards became confluent, and spread over the whole body. Gradually, as in the previous case, similar attacks of angina set in, only in a somewhat more aggravated form; speech became very inarticulate, swallowing impossible; the inner mouth swollen and covered with a thick, whitish apthous crust; periodically great restlessness and tossing about; prognosis very unfavorable. Pulse, secretions and excretions, were about normal. This grade of fever continued four days, dur-

ing which time single pustules dried up, and new ones formed, until, gradually, desquamation took place. During desquamation, toothache in the left side, followed by swelling of the lower jaw, which became carious, exfoliated, and finally got well. In this case too, the teeth remained firm, and there followed no ptyalism.—(Kahleis, in *Hufeland's Journal*, Vol. 56, 1823.)

10. A girl, æt. 5, was taken in June, 1843, with whooping cough, followed by symptoms of pneumonia, and bronchitis. She then received Calomel, of which she took twenty-four grains from July 17th to August 4th. She had from three to four stools daily, without any abatement in the cough. On the 22d of August, the parents observed that the right cheek was somewhat swollen, hard, and had a peculiarly pale and shiny appearance. Four or five days later, a very offensive odor, increase of swelling, and discharge of bloody ichorous matter. On Sept. 8th, a gangrenous spot on the external cheek sank in and formed a hole. Destruction made rapid progress. On the 12th of Sept. the child died.—(*Jour. f. Kinderkr. v. Behrend u. Hildebrand*, I. Band, S. 402.) Dr. Korre thinks the long continued use of large doses of Calomel in this case, was the cause of the disease, since the child had been otherwise well, born of healthy parents, was well nourished, kept clean, and had good care during the illness; and as she was not unusually affected by the whooping cough, there seemed no other cause for the malady; besides, we know of many cases, in which noma followed the continued use of Calomel.—(*Allg. Hom. Zeitung*.)

11. After the abuse of Calomel, the following symptoms appeared: Enormous secretion of saliva had lasted for weeks; the salivary glands and tongue were very much swollen; the gums spongy and bleeding; deep, bleeding, and offensive smelling ulcers, extending to the posterior nares; considerable loss of substance of nearly all the parts forming the buccal cavity, and inflammation lower down in the throat. Entire loss of appetite; could not well take the mildest articles of diet, on account of the excessive pain in swallowing. The patient was emaciated to a skeleton; the ankles swollen; diarrhoea, with fever; could not leave the bed, and only turn over when assisted. The

hemorrhage from the mouth returned frequently and robbed the patient of all remaining strength.

12. Three doses of Calomel, 10 grains each taken in 8 hours. Violent vomiting of saliva-like fluid, great anxiety. Cutting bellyache and 18 watery, greenish, slimy stools, mixed with blood.—(*Hufeland's Journal*, 54, B., 1822.)

13. Hiltcher observed after the use of Calomel, a very serious inflammation of the tongue, with copious salivation, excoriation, ichorous pulpy exudation, etc. The tongue was so much swollen as to threaten suffocation.—(*Canstatt's Jahresbericht*, für 1847.)

14. Williams treated a man, æt. 53 years, for rheumatic fever. He took, besides other drugs, half a drachm of Calomel in four days. In consequence, extreme salivation was developed, which passed into necrosis of the lower jaw in spite of all remedies. (*Canstatt's Jahresbericht*, für 1850, aus *Prov. Medical Chirg. Journ.* 20.)

GENERAL EFFECTS OF CALOMEL.

Calomel acts on the negative and formative life, without, like the sublimate, having a marked action on the circulation and nervous system. It increases and alters the intestinal secretions; in a greater or less degree produces fluid passages, vomiting, violent stomachache, colic, assuming the character of inflammation of the bowels. The biliary secretion is also increased, hence the green passages. This discoloration however, may partly be due to the admixture with the stools, of extremely fine particles of sulphide of mercury, which forms in the lower portion of the intestinal canal if the Calomel remains there for any length of time. The bile, however, appears to play a more prominent part in producing the discoloration than the sulphide of mercury; notwithstanding, Mosler and Skott in experimenting on dogs with biliary fistula, did not find an increase of bile after administering Calomel. That the results obtained after so serious an operation as that of making a biliary fistula, cannot be the same as from intact organs, may be readily comprehended. In the therapeutics of mercury in hepatic diseases, we return to this question: Massive doses of

Calomel produce watery evacuations, and give rise to green discoloration only if several times repeated. When given in small doses and long continued, the main tendency is to cause diarrhœa, colic, emaciation, and salivation. Women who take it during pregnancy give birth to weak, miserable children, who seldom live longer than a few days. Trembling of the limbs and spasms are likewise symptoms of chronic poisoning. It generates thin, venous blood, an excess of fluid substances, sponginess, and laxness of the solid parts, thus developing, in general, a lymphatic constitution. On the skin it produces various eruptions. It principally affects persons with fragile bones and weak muscles, torpidity of the portal system, disposed to venous hæmorrhages, mucous discharges, and excessive bile, particularly in scrofulous subjects. The assertion of several physiologists that Calomel has poisonous effects only when it contains sublimate, is refuted by Orfila, who proved that poisonous symptoms appeared when the Calomel had been completely washed, and did not contain an atom of sublimate. Another argument that patients take simple doses without injurious effects, is answered by the experience that patients can often take doses of poison which would, undoubtedly, kill a healthy person. The Calomel partly combines with the albumen in the stomach, and in this combination is taken into the blood.

Miahle maintains that Calomel acts by reason of a portion of it being changed into sublimate, by combination with chlorine present in the stomach and intestines; but since Calomel has greater affinity for albumen, and the effects of Calomel and sublimate are very different, this view is to be rejected.

MERCURIUS PRÆCIPITATUS RUBER.

Experiment with a Dog.

Half an ounce of red precipitate was applied to the thigh of a dog. Besides general weakness, no symptoms appeared. In four and a half days, death occurred. The post-mortem examination showed the stomach bluish-red, the duodenum white. The rectum had undergone a remarkable change. The inner membrane was soft, tumefied, in ragged folds, cauliflower-like,

of a dirty bluish-red color; the peritoneal membrane was unchanged and bluish-red. The blood-vessels on the surface of the heart injected; beneath the lining membrane of the ventricles were noticed reddish streaks. The base of the tongue was somewhat swollen.

Symptoms of Poisoning from Man.

1. A young girl took a goodly portion of red precipitate in confectionery. Violent stomach ache, which she tried to conceal as much as possible. Finally vomiting set in, by means of which a portion of the poison was expelled. The pains extended over the entire abdomen. Suspicion being aroused, she received a large portion of hot milk. The abdominal pains grew worse and worse; copious diarrhœa, with very painful cramps in the lower extremities. This condition lasted fully six hours. The physician who was called found the abdomen hard and contracted; the skin cold and covered with sweat; terrible pains in the abdomen. Injections of bran-water with five drops of laudanum were ordered every half hour. The pains and diarrhœa grew less; night-sweat followed; the patient slept several hours, and was in a very satisfactory condition next morning. There remained a remarkable sensitiveness of the abdomen, and a peculiar tendency to involuntary spasmodic contractions of the extremities. Several days later the patient resumed her duties.—(Orfila, *Toxicologie*.)

2. A woman, æt. 36, in seventh month of pregnancy, took by mistake a large pinch of red precipitate, instead of a red powder she was accustomed to get from the drug store. In order to promote perspiration she went to bed. In an hour she had nausea, vomiting, oppression of the chest, pains in stomach and entire abdomen. After vomiting several times, the attacks abated, with the exception of some pain in the abdomen; she arose and went to her sister's house, in the neighborhood. She had scarcely reached the house, when all the symptoms returned, only the vomiting so much more violent and frequent, as to bring up a quantity of blood, which was followed by fainting. After being revived by strong-smelling salts, the vomiting returned with the same force,

now accompanied by diarrhoea. The pains in the abdomen became unbearable; thereto was added burning in the mouth and throat, with unquenchable thirst. Nothing of any importance being done, trembling likewise followed. On the third day, the condition was the following: trembling all over; extraordinary redness of the whole face and eyes; staring wild look; specific, intolerable odor of ptyalism. In a short time she again vomited, twice bringing up a quantity of blackish blood. The gums swollen and inflamed; the tongue so thick as to fill the entire mouth, and in several places as if ulcerated through. The buccal cavity had the appearance as if lined with a thick crust of old rotten cheese. The larynx was also swollen and even inflamed on the outside. The pulse rapid, small and hard. The abdomen already enlarged by pregnancy, was swollen to bursting, and so sensitive that the patient could not bear the slightest touch. She had not felt motion all day. She received sulphate of potassa boiled in water, and mucilaginous drinks. The vomiting stopped after the first dose, and she felt great relief; the remedy was therefore also given in injections. At 3 P.M. she again complained of nausea, and dreaded return of the vomiting of blood. She felt oppressed about the chest. After letting blood these attacks disappeared, and no vomiting followed. On the fourth day, the other symptoms abated, but she could not sleep on account of severe pain in the mouth. The putridity of the mouth was at its worst; the teeth could scarcely be seen on account of the swollen gums and the collection of mucus. The tongue had two holes large enough to admit a finger; it was actually deformed. On the fifth day, marked chemosis of the eyes; this was removed by an eye-wash. Gradually, all symptoms improved, the woman got well, and in due time, was delivered of a healthy child.—(*Hufeland's Journal*, 55. B., 1822.)

3. A woman took by mistake Merc. præcip. ruber; immediately after taking it, severe burning in gums, throat and stomach. Great anxiety, with inclination to vomit. Ptyalism, lasting eight days. The rheumatism in the arm, of which she complained, was gone, and she afterwards felt quite well.

4. A girl, æt. 22, came into the hospital with the following

symptoms: Cold clammy skin, especially on the extremities, stupor, similar to narcosis. Pupils somewhat dilated, and still somewhat sensitive to light. Pulse frequent, small, weak; eructations, foaming at the mouth, occasional vomiting. The fluid first vomited contained red powder. Pressure on abdomen and epigastrium produced no pain. Blood was not contained in the vomit. The stomach-pump was used and white of egg given. In eight hours the skin was hot and red. Pressing sensation in the region of stomach and abdomen; cramps in legs; vomiting of mucus; dryness, pain, and redness of pharynx. Pain when urinating, yet the urine was neither scanty nor bloody. Several painless stools, mixed with blood; tongue dry, but neither furred nor red; pupils slightly dilated; small thread-like pulse. Chemical analysis showed red precipitate.

5. A journeyman mechanic, æt. 36, swallowed, on the 6th of July, 1835, at 8 P.M., an ounce of red precipitate, which produced violent cramps, retching, vomiting, and such prostration, that he could not stand on his feet. Bloody stool, with pain and tenesmus. Next day, at 10 A.M., he was brought to the hospital, with the following symptoms: Sunken, thin, bluish face, with sunken eyes, surrounded by blue circles, and an expression of great suffering; great prostration, nausea, pressing in epigastrium, rumbling in abdomen, frequent watery stools. Received milk emulsions, with small doses of Tartar Emetic. In the evening, the vomiting had stopped, but the sensitiveness of abdomen increased. Slept a little during the night, but towards morning complained of cold feet, and great weakness. Although covered with several blankets, he could not get warm. July 8th, 6 A.M., the entire surface of the skin was livid; the extremities cold, the muscles rigid and clearly defined, the countenance void of expression; the voice weak, indistinct; the heart-beat scarcely perceptible. Bathed in camphor-vinegar. Dead in three hours. Post-mortem showed great venous engorgement of the membranes of the brain, and choroid plexus. The right heart and large vessels filled with black fluid blood. The lining of the œsophagus discolored; the papillæ of the tongue swollen. Mucous membrane of sto-

mach corroded, especially in the large curvature; particles of the poison had become imbedded in the coats of the stomach and produced numerous small ulcers, with raised edges, tumefaction and sponginess of the membrane, each ulcer with a particle of the poison lodged in its centre. The stomach and duodenum each contained a brownish turbid fluid, full of precipitate; the duodenum contained besides, larger pieces of the metallic oxide. The anterior surface of the stomach, the omentum, and the intestines were inflamed.—(*Buchner's Report*, 2 R. Bd. 3.)

6. Dr. Eiselt who states that he made experiments on himself during the early part of his practice, with several of the most violent remedies, took, while observing a strict dietetic regimen, one-sixth, one-half, to one grain of precipitate morning and evening, without feeling the slightest effects. Thus emboldened, he took two grains morning and evening; but already the first night, he was attacked by severe colic and constant tenesmus, which grew worse and worse, spreading through the whole intestinal tract, causing, particularly in the anus, a sensation as if a red-hot iron was moving up and down in it. There was the most violent tenesmus; but a small quantity of blood passed, with violent cutting and burning pains. When nausea and burning in stomach set in, he took a *Mist. Oleos. cum Ag. Lauroc. cohib.*, discontinued the precipitate, and was well in two days. After waiting another day, he commenced to take three grains morning and evening, increasing grain by grain up to six grains twice daily. There followed a peculiar itching in the whole lining of the buccal cavity, without salivation or toothache; offensive smelling breath, and soon after burning pain on the inner mucous membrane of the lips, which were much swollen. The prover stepped to the mirror and saw mercurial ulcers in perfection. He discontinued the experiment, rinsed the mouth with Inf. Salv., and in a few days all had disappeared. Before the ulcers appeared, he had taken altogether, more than thirty-four grains of precipitate. While making the proving he noticed marked improvement in his chronic inflammation of the Meibomian glands, of several years stand-

ing; in fact, it quite disappeared during the proving. (*Med. Jahrbücher des K.K. Oesterr. Staates, Neueste Folge*, 5 B., 1833.)

7. A hale man of fifty, received, through carelessness of an assistant druggist, Merc. præcip. rub. gr. i—tal. dos XXI, three a day, instead of one-twelfth grain p. d., which was not noticed until the twelfth powder. Bloody stools, nausea, violent colic, followed by copious salivation and mercurial ulcers. The inflammatory symptoms were speedily checked; the salivation ran its usual course. (*Neue Zeitschrift für Geburts Kunde*, 17 B., 1845.)

8. A woman, with the intention of committing suicide, took two scruples Præcip. rub. In half an hour, extreme stomach pains and nausea. Received an emetic consisting of Ipecacuanha, linseed oil and milk. Violent vomiting followed, the patient recovered under suitable diet in a few days; salivation was slight. (*Canstatt's Jahresbericht*, 1860, aus *Lancet*, II, Nov., 1859.)

9. A woman swallowed over two drachms red precipitate. When Prince saw the patient, three hours after the poisoning, she had violent colic and nausea. After an emetic, continued vomiting for twenty-four hours, finally of blood; after twenty-four hours, bloody stools and severe cramps in the abdomen, for which was prescribed an effervescing mixture, and ammonia and Opium. On the third day, severe mercurial stomatitis with salivation. Later, after the treatment, in consequence of loss of substance and cicatricial contraction, there was complete closure of the jaws, which was only partly improved by gradual dilatation. The gums around the front teeth were completely destroyed; but in five months, there was visible, a kind of new growth in their place, and the patient could swallow the articles of nourishment; although chewing remained out of the question, and the mercurial odor and œdema of the face continued. (*Ib. dem.*)

GENERAL EFFECTS OF RED PRECIPITATE.

As far as we can judge from the few poisoning cases, the precipitate acts similarly to the sublimate. Twitching of the limbs occurs more frequently than with other mercurials. The conjunctiva is more frequently affected than by other mercurial

preparations; likewise ulcers in the mouth appear sooner; whereas those produced by calomel spread more, and attack the posterior nares by preference. Symptoms of the urinary organs we do not find reported; the action on the skin is more prominent in calomel, than in the other mercuries.

CYANIDE OF MERCURY.

Experiments on Animals.

1. A small bitch received seven grains of Mercury cyanide, dissolved in distilled water. In five minutes, retching, cramps, alternating with weakness; respiration and heart's action at first accelerated, then extraordinarily slow. Death in ten minutes.

2. Ten grains of cyanide of mercury put in the stomach of another dog, caused the same symptoms in one minute and death in seven minutes.

3. About three grains were injected into the connective tissue of the thigh of a dog. In three minutes, retching and spasms, broken from time to time by fits of weakness lasting three quarters of an hour. The animal then remained weak with tottering gait; the vomiting stopped. In four hours all symptoms disappeared.

4. Five grains were injected into the connective tissue of of another dog's thigh; the same symptoms appeared in two minutes and death followed in fifteen.

5. Repetition of the foregoing experiments with twelve grains. Death occurred in nine minutes with same symptoms.

6. About three-fifths of a grain was injected into the jugular vein of a young dog; he immediately fell on his side; slight spasms, lasting but several seconds; very slow respiration, heart beats thirty-two to the minute. Respiration and circulation grew slower and slower, and the animal died without spasms in five minutes.

The post-mortem changes were of no decided character. In the cerebro-spinal system, no abnormality; the lungs contained little blood and crepitated; the heart relaxed, and its chambers contained considerable blood, which was partly fluid. In the dog killed by injection in the jugular vein, the blood formed

very elastic, firm, and fibrous coagula in the vena cava ascendens, and the iliac veins. In the other animals the blood in the vessels was mostly fluid. The color of the mucous membrane of the stomach, was quite varied; in two cases, there were dark red spots, formed by the union of many small vessels. The stomachs of both animals contained food partly digested; digestion may have had something to do with the discoloration. The same color, somewhat less marked, was found in a dog which received twelve grains after fasting thirty-six hours. The same appearance of the mucous membrane of the stomach and intestines was seen in a dog killed by injection in the connective tissue of the thigh. This dog's stomach was partly filled with food. Another dog, killed in the same way, had eaten nothing for forty hours; the mucous membrane of stomach and intestines was whitish; he had vomited several times. The appearance of the mucous membrane varying so much, the redness after sudden death cannot be considered a constant characteristic. In all these animals, the stomach was greatly contracted, except in the one killed in ten minutes by injection in the jugular vein. In all, without exception, the liver was filled with copious fluid blood.

SYMPTOMS OF POISONING IN MAN.

1. A strong healthy man, was all the time taciturn and irritable, without any cause for being sad. He preferred solitude to amusement, and several times spoke of being weary of life. In April, 1823, after futile attempts to take a preparation of prussic acid, he swallowed six-and-a-half grains of cyanide of mercury. Immediately, vomiting mixed with blood ensued, frequent and copious stools, and terrible pains in the whole abdomen. The patient drank mucilaginous drinks. After four days, Dr. Kapeler was called. The patient's face was flushed, the eyes fixed, and the conjunctiva injected. He confessed, at last, to having poisoned himself in the above mentioned way. The exterior of the body showed nothing remarkable, except a dark brown discoloration of the scrotum and semi-erected penis. Terrible headache, strong heart-beat, rather

slow, but full; hard and regular pulse; free respiration; slight cough; normal resonance of the chest. Lips, tongue, and inner surface of cheeks covered with numerous ulcers; salivary glands swollen; ptyalism; swallowing easy. Disgust, continued nausea, and frequent vomiting after drinking; great thirst. Abdomen soft, not sensitive to pressure; frequent urging to stool, with tenesmus; stools infrequent and mixed with blood; suppressed urination. (Twenty leeches to the anus; veal-broth as a drink; injections of bran-water; boiled barley and honey for gargling.) On the following day, the condition was the same. (Thirty leeches and poultices to the abdomen.) On the sixth day none of the symptoms had abated; the condition of the mouth was the same; vomiting, tenesmus, and suppression of urine continued; the abdomen soft, not painful on pressure; the heart-beats violent and strong; the pulse unchanged (albumen and water, warm bath); restless, sleepless nights; when in the bath, the anxiety ceases. (Bled nine ounces.) On the seventh day, the heart-beat not so strong; pulse a little weaker, salivation less profuse; the condition of mouth and other symptoms unchanged. (Thirty leeches.) By day, the patient is quiet, and only complains of pain in the mouth; slight convulsions in the extremities. On the eighth day, general weakness, frequent fainting, somnolency, vomiting frequently, suppression of urine; the semi-erected state of the penis also continues, and the purplish hue. In the evening, slow pulse, cold extremities, hiccough, retention of urine. On the ninth day, condition the same. Extraordinary weakness, and fainting attacks. Continued hiccough. At 2:30 died in a fainting attack. Post-mortem examination twenty hours after death. External condition: Well developed body, dull pallor of the skin, upper and lower extremities rigid and contracted so the body only rests upon the back; the muscles red, very large, and covered with a thick layer of fat. Respiratory organs, larynx, trachea and bronchia, contain much whitish phlegm, a part of which flowed from the nose; the pleural cavities contained several grammes of pinkish serum; the lungs somewhat pink, healthy, and crepitating; wherever a cut is made, much serum flows out. Circulatory system: On making

a cut into the skin, muscles, or bloodvessels, pale and very fluid blood flows out. The inferior vena cava is filled with a very large, elastic, and tough coagulum; the heart imbedded in fat appears a little larger than normal, without having hypertrophied walls; but little blood in both ventricles; fibrous coagulations in the right auricle.

Digestive organs: Peculiar stinking odor from the mouth. Inner surface of cheeks and the gums are covered with ulcers, having a grayish coating; the tongue thicker than normal, ulcerated on its edges, and covered with a very thick dry coating, hard to remove. The pharynx is normal; in the middle of the œsophagus an ecchymosed pink spot the size of a thaler. The peritoneal cavity contains some yellowish serum. The stomach is of moderate size, and externally normal; the intestines distended by gas. The mucous membrane of the stomach is bluish red in the small curvature; in the cardiac portion and large curvature dark red, exceedingly tumefied, and covered with ramifications of blood-vessels. In the duodenum and jejunum, it is very much tumefied, dark red, in some spots quite black, and in others gangrenous. The redness the same in the cœcum; pale in the ascending colon, more red in the transverse colon, less in the descending colon, and again darker in the rectum. The mucous membrane throughout the intestines is swollen, and in some portions, particularly in the small intestines, granulated. In all places where the membrane is raised in this manner, there is marked infiltration of serum into the submucous connective tissue. The pancreas is very large, hard, dry, easily torn, and creaks under the scalpel. The liver is enlarged, but the substance shows very little change. The gall-bladder contains a blackish-green, stringy, pitchy fluid. The spleen is small, otherwise normal.

Uropoëtic organs: The right kidney is a third larger than normal, its substance is pale; the left is a little smaller and less pale than the right. The bladder is small, contracted, containing a very small quantity of milky urine. The penis semi-erected, and like the scrotum, of a purplish hue. The skull and spinal column were not opened. Neither in the blood nor

in the excrements could Mercury be found chemically. (Orfila, *Toxicologie*.)

2. A student took at 10 P.M., on December 2d, with the intent to kill himself (and after drinking three glasses of beer), two grains of cyanide of mercury in a fourth of another glass. He had not taken solid food for seven or eight hours. Immediately, nausea, followed by vomiting. In about ten minutes, continuous vomiting was added, violent urging to stool, soon followed by evacuations. Vomiting and diarrhœa now alternated until 10 A.M. During this time, he may have had thirty to forty attacks of vomiting and diarrhœa. To these symptoms were added bitter taste, violent colic, increased with every evacuation; vertigo, headache, and great chilliness.

December 4th, 11 A.M.—The patient's face cyanotic; pupils widely dilated; extremities cold; pulse weak, 130 per minute; tongue clean; abdomen not distended, and not painful to the touch. Lungs and heart unaffected, only the heart's impulse and sounds very weak. Urine not passed with the stools. Prescription: milk, mucilaginous drinks, cold applications to the head. In the evening, the vomiting had completely stopped. There were two thin evacuations, tinged with blood; these were without urination. Pulse 132, small; cyanosis somewhat less.

December 5th, A.M.—Patient slept all night. On waking, violent headache; increased nausea and thirst; difficulty in swallowing; entire lining of the fauces highly inflamed; evacuations had ceased; bladder empty. Pulse 102, irregular; pupils somewhat more contracted: Same prescription. Patient slept much during the evening; had no evacuation. Pulse 92.

December 6th, A.M.—Had a good sleep; pulse 90; tongue thickly coated, but no vomiting and evacuations; otherwise the same.

December 7th, A.M.—In the night, vomited twenty or thirty times, with increased bitter taste. The matter vomited, consisted of a whitish, turbid, slimy mass, of alkaline reaction, without any marked odor. Tongue moist and coated; no evacuation; bladder empty. Pulse 88; profuse nose-bleed. Headache and vertigo continued. Ice pill and an injection. After

the first spoonful of the medicine, vomiting again; the injection was followed by two dark fecal evacuations slightly tinged with blood; no urine. Pulse 90. Slight nose-bleed, otherwise the same.

December 8th, A.M.—In the night, violent vomiting twice, of considerable dark blood, a dark fecal stool, slight thirst, no appetite; tongue thickly coated; formation of vesicles on the left border of the tongue, also on the left side of the soft palate; swallowing remains difficult; pulse 90, and regular; but little nose-bleed; no urine, no sweats. There was no urination up to the 10th, when, during an attack of nose-bleed, there was urging to urinate, and the urine passed in bed.

The urine, which was collected on the 11th, had an acid reaction; the quantity was too small to take the specific gravity. Microscopical examination showed numerous straight and twisted tubuli, covered with finely grained detritus; no blood corpuscles. A chemical analysis disclosed much albumen. Once or twice a day, attacks of nose-bleed, alternating with vomiting, up to the 17th. Also a daily increase of urine. On the 18th, no nose-bleed, and no more albumen or tubuli in the urine, which was now copious. Pulse 54; tongue still thickly coated. On the 20th and 21st, no nose-bleed; the tongue, for the first time, moist and clean; taste and appetite improved; pulse 88, intermitting. On the 22d, no more vomiting, but also no evacuation in spite of three injections. Same condition on the 23d. Another injection on the 24th, brought a copious normal evacuation. Soup and gruel were well received. On the 25th, decidedly convalescent, with a remaining tendency to constipation for several days. The last of December, full diet, remains well, without any after effects. (*Monatsblatt*, zü 70 *B. d. Allg. Hom. Zeit'g.*)

3. Leon Simon reports the following case: Mr. IL., 19 years old, architect, weakly, nervous constitution, several hours after eating a hearty dinner, took a glass of sugar-water in which was put by mistake, a teaspoonful of a saturated solution of cyanide of mercury. A short time after taking the poison, the patient experienced a general feeling of coldness, soon followed by nausea, vomiting, and diarrhœic evacuations with

violent colic. During the evacuation a feeling of general prostration soon amounting to a fainting fit, in which he fell to the floor, where he lay for an indefinite length of time in an unconscious state; he was alone in his room and received no aid. After consciousness had returned, he crawled into bed, where he was found next morning—seven hours after taking the poison. Simon saw him about 10 o'clock A.M., eleven hours after swallowing the cyanide of mercury. Not knowing the cause of the attack, he received an infusion of tea, which was soon after vomited up. At first sight, the young man seemed to be suffering from an attack of cholera morbus; his face was pale, somewhat bluish, and distorted, the eyes sunken, skin icy-cold, pulse small, 70 to 76. Tongue pale, violent thirst, but what he drank was immediately vomited; a disagreeable astringent taste in the mouth. He had no evacuation and had not urinated for two hours. The abdomen was not tympanitic, nor particularly sensitive to pressure. Simon thought that the repeated evacuations had carried the poison from the intestinal canal, and prescribed neither emetics nor chemical antidotes, but gave the patient Hepar sulph., third dil., with alternate drinks of albuminated water. Until 6 P.M. the patient vomited twice, not very copiously, but with much straining; had six fluid, offensive-smelling passages. The skin had become warm again, the pulse was quicker and stronger—90 beats. The tongue continued pale, with a yellowish coating on the back part. Scraping in the œsophagus; difficult swallowing; the pharynx looked red and arborescent. Violent thirst, burning in the stomach; epigastrium and abdomen painful to pressure. The night was spent sleeplessly. The patient was much excited and talked without cessation. He got angry with his watchers and talked at random in his rage. He drank much, vomited six times, and had eight stinking, green, slimy stools; no urine passed. Next morning the condition was the same as the evening before. Skin hot, somewhat moist; headache, vertigo, when sitting up; ringing in ears. Hepar sulph. continued. Next day the condition was improved; he vomited but once, and had three fluid passages, less painful; passed urine once; sleeplessness and excitability the same; extremely violent headache. Vertigo

and ringing in ears on sitting up. Great weakness. *Belladonna*¹².

March 15th.—Sleeplessness and headache the same in the night, but not so furibund; less thirst; no more vomiting; very slimy, diarrhœic stools, with some tenesmus. Pulse increased; skin moderately warm; less vertigo; mucous membrane of mouth affected, gums swollen, covered with a white layer, with a violet-colored margin; tongue swollen; the entire mucous membrane of the mouth and fauces red and arborescent: Nitric acid⁶.

March 16th.—General condition the same; fever in the night, with sleeplessness and violent headache; no vomiting, no evacuation; condition of the mouth somewhat worse. A white, transparent layer, resembling soft, broad, superficial syphilitic condylomata, has formed on the palatine arches and tonsils, further, there was present on the inner surface of the right cheek, a round ulcer with grayish base, sharply defined edges, surrounded by a bright red border. Nitric acid continued.

March 17th and 18th.—Condition the same, except that the ulcer in the mouth had spread, and was covered with a layer of grayish exudation; great thirst, cannot take warm drinks or meat-broth. The latter seemed to him too salt. Constipation, and some pain in the belly. The latter is not distended, and not very sensitive to pressure; urine clear, but scanty; on the 17th the patient was left without medicine; on the 18th and 19th, he received Sulphur¹⁸. He had continuous hiccough for twenty four hours, this was finally relieved by *Nux vomica*.

March 20th.—Condition of mouth improved. The ulcerated surface clean, and is beginning to cicatrize; gums less swollen, less red, and the white coating has disappeared. Less thirst, meat-broth and light soups well received. Constipation; urine more copious; the nights are more quiet; still, the patient has not his natural sleep. The neuralgic headache still continues during the first part of the night. Pulse small and weak, 70 to 75 beats. The patient could rise yesterday, without being too much fatigued thereby. On the 21st of March, improvement seemed likely to be permanent; but on the 22d, there was a

sudden return of watery evacuations, which were preceded by violent colic; no urination; the tongue is again covered with a gray coating; the patient has a very disagreeable metallic taste, a return of the thirst, aversion to food, nausea; pulse accelerated but weak; skin moist and cold, and general prostration. *Aconite*¹².

March 23d.—Symptoms in mouth better; increased diarrhœa; since yesterday, twelve blackish, fluid, very fetid stools, and violent colic; urine scanty and dark. Extreme weakness, pale face, icy-cold skin; small, thread-like pulse, 100 beats; thirst moderate; aversion to food. *Cinchona*⁶.

March 24th.—Diarrhœa the same; patient very weak; pulse small; skin moist and icy-cold. Hippocratic face; could not sleep, on account of frequent evacuations. *Carbo veg.*²⁴.

March 25th.—But eight evacuations during the past twenty-four hours. They were dark; one of them contained some blood. Pulse stronger, 100 beats; skin not so cold, and countenance more natural; less thirst; tongue retains its gray coating. Tongue less inflamed but swollen. Mucous membrane of mouth and pharynx quite clean. *Carbo veg.*³⁰.

March 26th and 27th.—Considerable improvement. Diarrhœa checked, and strength returning. Patient can remain up almost an hour; some return of appetite, patient can take soup; when sitting, he complains of pain in the rectum and about the anus.

March 29th.—No more diarrhœa, but the pains in the rectum are becoming unbearable. The parts about the anus are swollen, sensitive, and somewhat red; no stool, but some black blood is expelled when making the effort. *Belladonna*¹².

March 30th.—All symptoms worse; six profuse evacuations of blood; the patient is again extremely weak; the pains in the anus continuing very severe; around the anus small hæmorrhoidal tumors, and wart-like elevations on the mucous membrane. *Rhus tox.*¹⁸.

March 31st, April 1st and 2d.—The bloody passages have ceased; besides the above mentioned symptoms, there is found about the anus a grayish, diphtheritic coating, quite similar to that on the inner cheeks; also erosions on the mucous mem-

brane: in short, the condition of the anus was similar to the pathological affection styled ulcerating broad condylomata. Merc. solub.¹⁸.

April 3d.—Aggravation of pain in the rectum; discharge from the ulcers, and disappearance of the diphtheritic coating; ichorous discharge from the rectum diffusing a characteristic gangrenous smell, and leaving broad, blackish stains on the sheets. Lachesis²⁴.

April 4th.—Less pain, and much less gangrenous odor; discharge from the anus still profuse, but more pus-like. Since yesterday morning, some pain in calf of left leg; on examination it was found that the veins had formed two hard cords, which united a little below the bend of the knee; the slightest touch is very painful. Lachesis¹².

April 5th, 6th, and 7th.—Improvement daily; the discharge from the anus growing less and less; it is of a serous nature, and has scarcely any odor. Yesterday the patient had a painful passage, but the sensitiveness has much decreased. He can now sit on an air-cushion. The leg is much in the same condition, and begins to swell as soon as he is on his feet.

April 10th.—The discharge is nearly stopped; the parts around the anus are somewhat red, but there is no swelling nor any diphtheritic coating; the patient remains up for several hours each day; for two days past, he has been able to eat and digest meat. Daily, one or two mushy stools, slightly painful. The leg is less painful, but continues somewhat swollen. No medicine.

April 12th.—Condition the same as two days ago. Lachesis³⁰.

April 14th.—Leg is less painful, the venous cords having grown much smaller; rectum and anus almost well. Lachesis³⁰.

April 18th.—Improvement continuous.

April 28th.—Leg continues somewhat painful; otherwise well. Lachesis²⁰⁰. Eight days after, the patient visited Simon. His condition was improved in every way. He could walk more than an hour without much fatigue.

May 14th.—Simon saw the patient for the last time; he had

resumed his usual duties.—(*Bulletin de la Soc. Medical Homœr.*, October, 1863.)

GENERAL EFFECTS OF CYANIDE OF MERCURY.

Although the action of mercury in this preparation is very similar to that of sublimate and red precipitate; inasmuch as we find amongst its effects the characteristic throat symptoms, the vomiting, bloody diarrhœa, tenesmus, retention of urine, etc., still the action of prussic acid is made manifest in the fainting, violent convulsions, loud screaming (in animals according to Lebethy), spasm of the respiratory muscles, cyanosis, great prostration, staggering, and paralysis of the extremities. Lebethy attributes the latter symptoms to a decomposition of the preparation, brought about by the action of the gastric juice, and liberation of prussic acid.

MERCURIUS BI-JODATUS.

In spite of diligent search for poisoning cases from this preparation, none could be found. We have, however, to report a very interesting experiment by Dr. Andrien. He gave to seven persons five, ten, to fifteen centigrammes of the third trit. and observed, in from eight to fourteen days, in all, save one, a skin affection resembling a syphilitic nodular eruption; particularly a kind of tuberculous nodule and indurated pustule; also, small ulcers on different parts, particularly on the thighs and buttocks, as well as on the face. In the case of a woman there followed also, a weak feeling in the stomach, and great weakness in the limbs. After an interval of two weeks, in which she was free from these symptoms, there appeared great pressure in the hypogastrium; sensation as if a vaginal prolapsus would occur, followed by a real uterine prolapsus. Uterus congested and enlarged; neuralgic pains in the region of the kidneys. Twelve days after stopping the proving, the symptoms disappeared, and the uterus had nearly returned to its normal position.

Reeseberg studied the effect of the iodide of mercury, applied externally to his own body. The first three ounces, used as an inunction, produced but slight inflammation of the skin,

accompanied, however, by very violent neuralgic and gnawing pains. On the fifth day of application, there were seen on the part to which the inunction had been applied, small cracks running in every possible direction; and the skin, with a gray discoloration, had a wrinkled appearance. When desquamation commenced, the pains became so unbearable that the ointment had to be discontinued. Afterwards desquamation progressed favorably; the pains disappeared, and in eight days every trace of the application of the drug was gone.—(*Canstatt's Jahresbericht für 1847.*)

CINNABAR.

Experiments on Animals.

1. From two to four grammes of powdered cinnabar, applied to the thigh of a dog, caused death in from three to four days; the size of the dose not seeming to have any influence on the rapidity with which death follows.

The following appearances are found after death: The mucous membrane of the stomach, in some parts, is pale—even blackish. In other parts the folds are yellow, surrounded with a whitish border. In other cases there are found spots similar to gangrenous ulcers, the bases of which are covered with clotting blood. In the small intestines no change is observed. In the rectum, there are occasionally found black streaks. The lungs, particularly the left lobe, are sometimes filled with black blood. Brain and heart remain unchanged; the latter still beats, pretty regularly, fifteen minutes after death.

2. In the body of a dog, killed by two drachms of powdered cinnabar introduced into the stomach, the heart was found normal, but the pleura and lungs inflamed; the thoracic cavity contained sero-purulent exudation. Smith, from whom these experiments were quoted, believes this poison principally affects the lungs.

Symptoms of Poisoning from Man.

As results of the so-called vapor cure, in which the patient is placed naked to his neck, in a box filled with vapors, generated by placing cinnabar on a heated plate or hot coals; there

were frequently observed, serious nervous attacks, twitchings, chronic trembling of the limbs, apoplexy, nose-bleed, mercurial eruptions, and complete emaciation. The experiments of Andrien, with from ten to fifteen centigrammes of the third dec. trituration, produced affections of the skin in four persons. None of them, however, assumed a tuberculous form, but erisipelatous inflammation, eczema, violent itchings, even where there were no signs of an eruption. Buffini cites, as symptoms following the use of cinnabar vapors: Pain in the gums and fauces, salivation, ebullition, anxiety, convulsions, tremor, fever, and consumption.

A sanguine, active man, æt. 63, wore for several months, a lower set of artificial teeth, on a vulcanized rubber plate, colored with cinnabar. After having for seven months symptoms of cinnabar poisoning, without having found the cause of his disease, he had also made for him an upper set of the same material, and used both five months longer before its relation to his complaint was discovered. The symptoms are reported in the order in which he gave them:

"I suddenly," says he, "found myself unable to attend to my usual duties, on account of fatigue. When making extraordinary mental or physical exertion, the exhaustion which followed was so extreme that I had to lie down. At the same time I was troubled with palpitation, worse when lying on the left side or with the head low. Violent pain in the head from front to back, and down the spinal cord to a little below the shoulder blades. If the exertion was continued, there followed nausea, vomiting, diarrhœa, and severe pain in the right hypochondrium. These symptoms varied in intensity. Soon after using the complete set, there followed violent aggravation of all the symptoms; burning pain and soreness in the liver; at times, suppression of bile; total loss of appetite; white coating on the tongue; bitter metallic taste; high fever at night. Finally, he had to take to his bed for six weeks. For three weeks of this period, there was very high fever, followed by copious, sticky, stinking sweat, as thick as mucus, lasting twenty-four hours. Afterwards, the fever abated for a week, when the same symptoms recurred in a more violent form.

Finally, when the patient had worn the entire plate for five months, the case was very carefully re-examined, and the following combination of symptoms found: Aversion to mental occupation; feeling as from over-exertion of the mind. Cannot follow one idea without great exertion and exhausting fatigue; cannot collect his thoughts; irritability; dissatisfied with himself and every one else. Cannot sleep in the daytime; restless and sleepless at night, or else sleep with anxious dreams; heaviness and dulness in the head; can scarcely lift it from the pillow. Occasionally, shooting pains through the head from out in front, and front to back. Feeling as of rush of blood to the head, with violent vertigo and great weakness, particularly in the morning. Vertigo and feeling of weakness in the head; frequently staggers when walking. Often feels as if he had taken cold; symptoms of coryza; running at the nose; throbbing of the temples, and rush of blood to the head all day and all night. Rushing sound in the ears; deafness. Eyes red, and painful; feeling as of sand in them. Conjunctiva of the lower lid injected, and covered with small granulations. Sore mouth, white tongue; bitter, metallic, disgusting taste. Sore throat and pharynx; great irritation in the larynx. Frequent œdema of the epiglottis; frequent attacks of suffocation on swallowing; hoarseness and loss of voice for several weeks. Cough worse at night; expectoration at first clear, then opaque; after several weeks consisting of gray, pus-like, occasionally blood-streaked sputa, smelling very offensively in the morning. Pain beneath the sternum; pain in the heart, worse when lying on the left side; palpitation during frightful dreams; pulse 90 to 100. Pain in upper right lung and in cardiac region, extending into left arm, which often feels numb. Throbbing in hypochondria. Very severe pain, extending from the region of the short ribs to the right kidney and the left hypochondria; swelling and heat in the right hypochondria. Burning pain in the right lobe of the liver, with soreness and sensation of great heaviness there; these hepatic symptoms are very severe and continuous. Capricious appetite; loss of appetite; nausea with vomiting, about once a week; the matter vomited is bitter and sour. Enlargement, pain, and soreness of the abdomen;

it feels distended, and he wants to loosen the clothes. Stool hard and copious, or sudden diarrhoea, consisting of white or dark passages. Urine frequent and increased in quantity, with sediment at first whitish; later, reddish. Limbs and joints painful, especially the knees; hands and feet very cold each morning, and hot at night. Hot skin in the evening; heat at night in bed. Fetid sweat between the thighs at night; feeling of lameness in all the limbs, with great fatigue, particularly in the morning; feels too weak to stand, and all bodily and mental exertion is too much of an effort. The pains and fever are worse in the evening and in the cold; pains in the head and eyes, worse after sleep. The pains are generally relieved by continuous rest, warm bathing, galvanism, and heat; and aggravated by cold.—(*Hirschel N. Z. f. Hom. op. Klinik* 17 [21], *B.* No. 16.)

ACTION OF SEVERAL MERCURIAL PREPARATIONS USED AT THE SAME TIME, OR IN SUCCESSION.

A young, strong, healthy farmer, with traumatic inflammation of the soft parts and the synovial membrane of the left knee-joint, and serous exudation, received three times daily one-twelfth grain of black oxide of mercury; and as often applied one drachm of mercurial ointment. After three grains of mercury and nearly an ounce of ointment had been used, after the wound had again opened and discharged a considerable amount of serum, with flakes of plastic lymph, inflammation, pain and swelling had almost disappeared, and the wound in the skin was fairly suppurating. At this time there appeared, in the course of twelve days, the following symptoms of mercury: A bright red, somewhat elevated eruption broke out on the entire surface of the body. The whole left leg was covered with dark red erysipelatous eruptions. The skin was swollen and hot. The pressure of the finger left no white spot. In several places about the knee, there were noticed, on the second or third day, larger and smaller vesicles, filled with yellowish serum, similar to those caused by a vesicatory. They were from the size of a hazel nut to that of a hen's egg. In several cases, for instance on the calf, they were confluent, and formed a single blister as

large as the hand. They nearly all broke; the smaller ones became covered with their yellow scales; the larger ones left an excoriated, bright red surface, discharging much serum. On the rest of the body, face, throat, chest, abdomen, neck, back, arms, and right leg, the eruption had the appearance of measles; portions of it of nettle-rash; the latter, especially on the chest and inner surface of the upper arms, consisting of red, roundish, somewhat elevated spots. In this place there were also a number of vesicles no larger than the head of a pin, increasing to the size of a pea, all becoming covered by a thin crust. This mercurial exanthem did not itch, but burned and pained, especially at night, so that the patient could not sleep. The pain was aggravated by the touch; therefore, the parts on which he lay were particularly painful; he was worse from turning in bed; even sitting up aggravated the pain. He could stretch neither leg, but kept them bent continually. Ophthalmia; the conjunctiva of the ball and lids is inflamed, the lids are swollen; canthi sore and excoriated, with biting pain in them. The edges of the lids itch and pain; after sleep, particularly in the morning, they are agglutinated, and secrete much thick pus. The patient often cannot open them until he removes the dried and fluid secretion with warm water. Pressing and itching in the eye. Photophobia, lachrymation, catarrhal affections of the nose, with soreness of the nostrils, and upper lip, and discharge of thin, white mucus. The lips are much swollen, inflamed, and painful; excoriated on the inside. In some places, small ulcers. The tongue swollen and excoriated, ulcerated in some places and covered with thick, yellow mucus towards the root. The patient finds it difficult to open his mouth, which is generally glued together after sleep and in the morning; speech is unintelligible; the lips frequently bleed, and are often covered with blackish crusts of dried blood. At times, when moving the lips and tongue in speaking, clear blood flows or spurts out from the mouth with the saliva, which forms continually. The saliva has a yellowish-reddish appearance; gums swollen; the pharynx swollen, dry, and painful; pain in swallowing; the cheeks somewhat swollen; the parotid and sub-maxillary glands also enlarged and painful. The erup-

tion decreased, and the skin peeled off with dry, yellowish scales as in scarlatina. The largest pieces came from the left leg and hands; the patient felt neuralgic pains in all the limbs. Not until the third week, had all the symptoms completely disappeared.

2. A man *æt.* 34, subject, from childhood, to swollen glands, had a small bubo, occasioned by the pressure of a musical instrument, and frequent colds; it was in the left side, and had been painful for four months. As the patient had an attack of gonorrhœa, eight years ago, his physician prescribed a mercurial ointment, and calomel internally, a dose every evening. The patient continued his usual mode of living while under treatment. The first days, he had fluid evacuations; soon after, the sub-lingual, maxillary, and parotid glands began to swell. Then occurred inflammation and violent pains in the left leg, so that he could scarcely walk. Salivation forced him to stay at home three weeks. Continuation of the inunction and sixteen mercurial powders. In a week, gradual decrease in salivation from using *Aqua laxat. Vien.* As soon as the patient resumed his vocation out of the house, there was increased angina with ulcers in the fauces and gums; coryza; violent earache and fœtid breath. Patient was found, by Goldbrandt, with violent pains in the limbs, particularly in the joints of the right arm, which disappeared in bed, and a hard tumor above the clavicle. There was daily increasing emaciation; anorexia; dysphagia, from ulcers in the mouth and fauces; exacerbations of fever, tormenting angina, and terrible earache. Patient fully recovered.—(*Acta Reg. Societ. Med. Hav., 4 B., 1792.*)

3. Colson observed mercurial tremor during anti-syphilitic treatment in six cases. In three of them it disappeared on discontinuing the mercury, but returned when the use of the drug was resumed, lasting for several weeks, in some cases forty days or two months. Case No. 6, had received two drachms of mercurial ointment daily, with the intention of producing salivation; all these cases occurred in women, and the tremor caused by taking mercurial preparations internally, continued two months after stopping the drug.

4. A young man, of delicate body and weakly constitution,

received mercury for syphilis, for a long time. After the symptoms were somewhat relieved, he took cold baths. The second bath was followed by violent headache and fever. After a considerable time, when these symptoms were removed, he became idiotic, and remained so.—(*Meterich a. a. O.*)

5. A man, æt. 60, strong and active, took mercurial treatment for syphilis. He took cold on a winter night, had violent fever, and fell into a soporose condition; these symptoms were soon removed, but shortly he became a hopeless maniac.—(*Meterich a. a. O.*)

6. A young gentleman of delicate constitution and disposition to scurvy, received an excessive quantity of mercury for syphilis. While under its influence, he fell from his horse and sprained his foot, which he bathed in cold water. He had done this but a few times, when general prostration, great anxiety, and restlessness appeared, followed by general confusion of ideas, so that he uttered words without order or connection. His consciousness returned, but there remained a slowness in answering questions.—(*Meterich a. a. O.*)

7. A laborer, æt. 36, received mercury for one month, for rheumatism and catarrh, supposed by his physician to be of syphilitic origin. This treatment was followed by salivation. A month after, the man had violent tearing pains in the tibia, and in the face, proceeding from the teeth, extending over the parietal and frontal bones. His health was restored.—(*Frörœip's, neue Notizen, 1849.*)

8. A woman with uterine disease, took thirty-seven grains of calomel, and applied, externally, five ounces of mercurial ointment. Salivation, as well as the mercurial scurvy of the mucous membrane of the fauces and mouth, with erosions on the tongue and mucous membrane of the mouth, lasting five weeks. Patient was anæmic, had continuous fever, with strong exacerbations in the evening. Such night-sweats that she had to change her clothing repeatedly. Extreme sensitiveness to the slightest breath of air. Teeth and hair unaffected. Loss of appetite; slimy, bitter taste; liver very sensitive to pressure; stomach slightly so; meteoristic distention of abdomen, sounding tympanitic all over; sensitive to the percussing finger;

much rumbling of wind, which oftener found vent above than below. Great thirst; pale, moist skin; small accelerated pulse, 102 to 115; long lasting constipation, with ineffectual urging to stool. Nux vom. continued eight days, was followed by improvement, but there appeared violent attacks of nausea, retching, and vomiting of bile and mucus, mixed with epithelial scrapings, beginning in the evening and lasting half the night, returning every other day for three weeks. The nervous system received a great shock. Three days after, the catarrh left the mucous membrane of the stomach and duodenum; it appeared in the large intestines, and assumed a croupous form. Distention and sensitiveness of the abdomen, in the region of the colon, increased; and, particularly at night, three or four brownish fluid stools, mixed with epithelial scrapings, preceded by borborygmus, colicky pains, burning in the rectum, with tenesmus. After the diarrhœa had lasted four days, it stopped, and at night was followed by long-lasting tenesmus, ending in evacuations of enormous masses of variously shaped exudations of mucous membrane, some the size of a marmot-skin; gradually the stools became better formed, but the trouble lasted fully five weeks, although the fever had long before disappeared. (*Allgemeine Hom. Zeitung.*)

9. A boy, æt. 4 years, suffering with acute hydrocephalus, complicated with helminthiasis, for which he received one drachm of calomel and two ounces of mercurial ointment. In ten days, gangrenous affection of the mouth, with insufferably fœtid odor, accompanied by considerable swelling of the right cheek and submaxillary region. The hard palate, and the inner surface of the right cheek, were black; the tongue almost immovable; the right half of it swollen; slight spasms ended the boy's life.—(*Canstatt's Jahresbericht, für 1845.*)

HOMŒOPATHIC TREATMENT OF THE EFFECTS OF MERCURY ACCORDING TO BUCHNER, JAHR, AND QUIN.

In acute poisoning cases with sublimate, Merc. ruber, Merc. cyanide, Calomel, etc., among all prescribed remedies, drinks prepared of albumen, dissolved in water, did the best service.

Copious drinks of water, if not vomited, facilitate the elim-

ination of the poison through the kidneys. For secondary symptoms, Jahr suggests Kali hyd. in large doses, or Hepar sulph., 6th dil. As a palliative in acute cases, Quin suggests tincture of Camphor, and Opium, in low dilutions; for special symptoms, the following remedies are recommended: For salivation and stomatitis, Iodium, Acid nitr., Dulcam., Hepar; especially with ulcers, Sulphur and Belladonna. In inflammation of the fauces and tonsils: Belladonna, Hepar sulph., Lachesis, Dulcam., Jod., Kali, in substance, Acid nitr. In phthisis trachealis: Ledum pal.

In affections of the lungs: Phosphor, Hepar.

In mercurial fever: China.

In mercurial vertigo: Dulcam.

For great weakness: Nitr. spir. dulc., Dulcam.

For violent unbearable pains: Rhus. tox.

With liver affections: Aurum, Nux vom., Magnes. mur.

For mercurial exanthems: Sulphur, Jod., Kali, Acid. nitr., Dulcam., Staphisagria.

For ulcers: Hepar sulph., Carbo veg., Lachesis, Acid. nitr., Aurum, Sulphur, and Silicea.

For buboes and glandular affections: Hepar sulph., Acid. nitr., Aurum, Dulcam., Silicea, Carbo veg.

For dropsy: China, Dulcam., Helleb., Sulphur.

For rheumatic pains: Dulcam., Pulsat., Sulphur, Hepar.

For the nightly bone pains: Mezerium, Aurum.

For caries of the bones: Staphis., Aurum, Asafœt., Silicea and Mezerium.

For nodes: Ledum, Staphis., Aurum, Asafœt., Ruta.

For necrosis of the bones: Arnica, Staphis., Arsen., Aurum, Acid phosphor., Asafœt.

THE THERAPEUTICAL USES OF MERCURY AND ITS PREPARATIONS.

In order to avoid repetition in the further course of this treatise, it seems appropriate to consider first the peculiarities of the fever induced by mercury, and the indications which it furnishes for the administration of the drug; and also, to explain the relationship of the same to inflammation.

a. FEVER.

Dietrich discriminates an erethistic and an adynamic mercurial fever. The erethistic he describes as follows:

After taking large doses of mercury for some days, the patients become restless, feel very weak and prostrated, and complain of dryness of the mouth, and a constrictive pain in the head, especially in the occiput.

They lose their appetite, complain of rumbling in the bowels, foul eructations, and an inclination to vomit.

The skin is hot and dry, and at evening flushes of heat appear, which, proceeding from the abdomen, increase gradually into a regular chill. Thirst is but slightly increased, and emptiness in the præcordial space is felt; sleep is disturbed and broken by fantastic dreams. The urine is flaming red, the pulse frequent, full and rapid, and the temperature of the body increased.

On the succeeding days, all these manifestations are intensified. The dryness of the skin increases to a burning sensation, there appear slight traces of stomatitis, and the pain in the occiput extends downwards upon the neck, even as far as the shoulder-blades, whereby the neck becomes stiff. The patients sigh, and show evidences of great oppression and anxiety.

The flashes of heat alternate with creeping chills. The eyes now become reddened, and have a glassy and watery look. A constrictive pain arises in the forehead near the root of the nose, and the nose itself is dry and occluded; the cheeks are hot, deglutition is rendered difficult from tension, burning and darting pains; the maxillary and parotid glands swell, and there are tearing, drawing sensations in the ears; the base of the tongue is coated with white mucus, and respiration becomes more and more anxious; the anxiety of the patient increases, and the pulse becomes very rapid and dicrotic.

With these manifestations the fever reaches its height, and terminates in a marked crisis, either in a profuse flow of saliva, or heavy perspirations. The duration of the fever is from five to seven days; it rarely terminates on the fourth day.

Adynamic Fever.—Several days after taking large doses of mercury the patients are in a state of excitement, which passes

off, however, in a few hours, and is followed by the opposite condition. The patients have an earthy look, bluish circles about the eyes, which are expressionless and glassy. The head is very dizzy, the nose and other parts of the face are cold, as also the lower extremities. Towards evening, fleeting chills alternate with slight flushes of heat. With this, they feel very despondent, sigh very much, are exceedingly anxious, and complain greatly of pressure in the præcordial space. Sleep is heavy and restless; the pulse small and frequent; the urine clear, and of a yellow color; slight constipation.

This condition lasts several days, increasing somewhat in intensity. The patients are very apathetic and weak, lie a portion of the time in bed; the face is deathly pale; the whole body cold; but the pulse becomes somewhat fuller. Suddenly the whole condition changes. The patients are seized with nausea, vomiting occasionally a tough greenish substance; the oppression of the chest increases; breathing becomes heavier, the eyes wander restlessly, and the pulse intermits. At night, there is a low delirium, and during the day slight incoherency. Skin and tongue are dry, but the latter is not coated; not unfrequently passive or paralytic hemorrhages or bloody diarrhœa now occurs. Then the patients become very quiet for a short time; then suddenly jump up, spring out of bed, and hurriedly ask for something, which, when given them, they throw away; or they stammer incoherently, tumble down, and are dead. The autopsy reveals an exudation between the pia mater and the brain; the liver gorged with blood; the gall-bladder filled with dark bile; but otherwise no apparent pathological changes. These symptoms arise most frequently after inunctions with mercurial ointment, and last from nine to fourteen days. Rarely does the fever terminate on the seventh day. If recovery ensues, neuralgia frequently remains, which points towards exudation about the spinal cord. (?)

Let us now consider the fever symptoms of the various mercurial preparations.

Mercurius vivus. — Shivering; attacks of alternating chilliness and heat; very great rise in the temperature of the body; *unquenchable thirst*; profuse perspiration; *fever and night-sweats*;

an accelerated, full pulse; pulse 100, temperature 98° (36.7° C.); pulse rapid and small, irregular; pulse small and extremely rapid; pulse feeble, small, rapid, and thread-like; feeble pulse, but not accelerated; pulse accelerated; urine containing sediment; *high fever, with delirium, chiefly at night*; great feverishness and drowsiness; *high fever*; *hectic fever*; red urine.—(*From Toxicological and Clinical Cases.*)

Mercur. solub. Hahnem.—Chilliness in the open air; chills creeping over the entire body every day without fever or thirst; constant cold hands and feet; coldness, chilliness and shivering, with blueness of the body, during the entire day; chilliness in the spine, with heat in the ears; shivering in the morning in bed; chill in the morning, and fever towards mid-day; chill in bed in the evening until midnight, then heat and great thirst; in the evening heavy chills, which make him shake all over; shivering as if cold water were poured over one; in the earlier part of the night chilliness, later on, alternate chills and fever; shivering, with frequent flushes of heat; chilliness from head to toe upon the least motion, in the intervals feverishness; chill at nine o'clock in the evening, and lasting during the night and while lying, and during slumber involuntary twitchings, jerking and tossing of the head, arms and legs; internal chills, with hot face, and burning in the cheeks; *sensations of alternating chill and fever, not perceptible, however, to external touch.* Fever, and sensation of heat in the face, with paleness of the same; after midnight, heat and redness of the left cheek, and perspiration of the palms of the hands; attacks of feverishness, with great anxiety, as if the chest were tightly compressed, but no thirst, alternating with sensations of chilliness over the whole body, accompanied by great depression; continuous alternating chilliness and fever; chilly when out of bed, but in the bed feverishness, with great craving for milk to drink in the night; perspiration, which produces a burning sensation in the skin; offensive perspiration for several nights; perspiration on the face and chest; *heavy morning sweats*; *profuse night-sweats*; perspiration of the palms of the hands and soles of the feet; great thirst for ice water; *extraordinarily op-*

pressive thirst; slow feeble pulse; rapid pulse, with a strong pulsation throughout the body; rapid and dierotic pulse.

Mercur. sublim. corros.—Chilliness of the extremities; coldness of the hands and feet; chilliness and shivering, often even with chattering of the teeth, especially when in the open air, and lasting an hour, frequently followed by warm perspiration; frequent chilliness at night when in bed; icy cold, especially evenings; cold shudderings, and chilliness in the loins; chilliness about the head; neck and skin covered with perspiration. Severe chill, succeeded by fever; before falling asleep chilliness restricted to the head alone; after falling asleep, waking up as if in a chill, and unable to sleep afterwards owing to the pressure and heat in the chest, with great anxiety. High fever, and skin burning hot, especially upon the forehead; skin exceedingly hot and burning; skin excessively hot; heavy perspiration covering forehead, temples, chest and hands, accompanied by disagreeable chilliness; night-sweats; moderate perspiration upon waking in the night; cold beads of sweat upon the forehead, with a dry skin. Unquenchable thirst; *violent thirst*; *pulse* 112, regular, small, compressible; pulse thread-like, and scarcely perceptible; *pulse feeble, rapid and irregular*; pulse small, rapid and irregular; pulse imperceptible. Pulse 120, small, fluttering and rapid; pulseless for twelve hours; small, feeble and frequently intermitting fever; hectic fever.

Mercur. dulcis.—Chill for a quarter of an hour; pulse small and hard, 75; great thirst; feverish most of the time; high fever; consuming fever; frequent night-sweats; continuous fever and night-sweats.

Merc. precipitat. ruber.—Although covered with heavy woolen bed covering, cannot get warm; skin cold, and covered with perspiration; cold, clammy skin, especially at the extremities; coldness of the feet; extraordinary redness of the cheeks; extreme thirst; pulse frequent, small and hard; pulse rapid, small and feeble, and afterwards thread-like; night-sweats; great anxiety.

Merc. cyanide.—Great chilliness; the skin icy cold, coldness of the extremities; fever at night, sleeplessness and severe headache; pulse small, and 70 to 76 a minute; pulse more

rapid, and 90 to the minute; pulse 130, feeble, with coldness of the extremities and anxious countenance; pulse 132, and small; pulse 102, irregular; pulse very slow, but full and hard; great thirst, but liquids drank are immediately vomited.

Cinnabar.—Sensation of chilliness, with lassitude and sleepiness; chilliness while in a warm room; skin moist and cool; pulse 60; coldness of the hands; chilliness in the morning, with perspiration under the arms; unable to get warm even when by the warm stove; forehead very hot: during the sleep at night feverish about the head and neck, which is perceptible in the morning, but passes off on sitting up; external and internal heat of the body during the whole night; chilliness when rising in the morning, and rumbling in the bowels; after the ninth day continual falling away of the body; cannot bear the heat of the sun shining in his room. Heat as of warm weather principally upon the right side of the head, on the chest and arms, but worse in the left one; the pulse appears to be less rapid in the morning and irregular; pulse at mid-day 44 to 52 pulsations in the minute; is accelerated at four o'clock to 80; pulse 60 at noon; in the evening 80; profuse perspiration between the thighs, with aggravation of all the other symptoms at night; profuse sweating at 12 o'clock mid-day.

As a prominent characteristic of the mercurial fever, we can as a rule say that it occurs generally in the night, and is accompanied by great thirst, sleeplessness and night-sweats. The pulse is uneven, as one beat is stronger than another, irregular, and occasionally intermitting. According to Espanet, mercury is indicated when there are strong pulsations in the temporal and superficial arteries; in headache, with feeling of pressure from within outwards; when there is quick reaction, but not persistent. Diarrhœa, bilious vomiting, and a profuse flowing of the saliva, when accompanying a fever, of themselves are an indication for mercury. In inflammation of mucous membranes, when accompanied by fever, if the inflammation progresses slowly, and remains superficial; moreover in serous or pseudo-membranous exudations, or in suppurations, mercury is an appropriate remedy.

Great weakness and prostration are also general mercury

symptoms. In the severer cases, where there is sleepiness, stupor, debilitating sweat, painfulness of the whole body, and burning in the stomach and bowels, the corrosive sublimate suggests itself rather than calomel, etc ; but in the catarrhal and rheumatic fevers, we should choose *Merc. solub.*

In hectic fevers, such as we see appearing in chronic poisoning with any preparation of mercury, the *Mercur. vivus* is preferable as the preparation which excites most constantly hectic fevers. In severe inflammatory fevers, however, even when the symptoms indicate mercury, we would at first give a few doses of Aconite.

b. INFLAMMATION.

If we regard mercury as a remedy exciting inflammation, then must we draw a sharp boundary between the acute and the chronic poisoning. In the former we find every requisite for inflammation: the blood is richer in fibrin and red blood corpuscles; and in the various organs we find with all mercurial preparations active hyperæmia, stasis and exudation; the last especially after the sublimate; also purulent formations, especially after *Merc. vivus*, for example in the skin.

In chronic poisoning we find the blood impoverished of all its solid constituents; when hyperæmia manifests itself, it is passive and venous, and everywhere there is a tendency towards decomposition of the tissues (a purulent exudation in ulcers). From these general observations mercury seems sometimes indicated in inflammations, and should be given in the lower triturations.

c. ACUTE INFECTIOUS DISEASES.

1. *Abdominal and Exanthematic Typhus.*

When we find inflammation and even gangrenous state of the mucous membrane of the intestinal canal at an autopsy, after poisoning by corrosive sublimate, which mercurial preparation acts most powerfully upon the intestines, it never starts from Peyer's patches. Therefore mercury is no *specific* in typhoid, yet there are symptoms in the course of the disease which indicate it. They are as follows:

The fever symptoms present themselves in two groups. One where meningitis and headache prevail, and the other where intestinal catarrh and enteritis predominate. Although in a disease which is so rich in symptoms as typhus a remedy may be suggested by a single symptom, yet many symptoms must be considered together before the final choice can be justified. When, therefore, we recommend sublimate in typhoid where there is bloody diarrhœa with tenesmus, we do it only because, aside from these symptoms, the drug offers many other analogies to typhus, as will have been seen in former pages. Also in exanthematic typhus there are the same symptoms which the sublimate produces. If we recognize a dissolution of the tissues in typhus, by *bleeding from the gums*, bloody urine, and frequent *greenish-yellow stools*, we are justified in giving *calomel* or the *sublimate*. *Bärtel* recommends *calomel* in typhus when there are the following symptoms: In the first stages in venous-lymphatic people of feeble build, with great prostration, pale yellowish countenance, constrictive headaches, thickly coated tongue, a foul, bitter, pappy taste, and slight thirst; *the stomach, liver and umbilical region very sensitive to pressure*; abdomen tympanitic; stools watery, flocculent and sometimes bloody; restlessness, anxiety, tossing about in bed, with but little sleep and anxious dreams.

In the second stage calomel is indicated so long as the tongue remains moist and there is no delirium; also if there is apparent gastritis, a white coated tongue, sensitiveness of the abdomen at any point, stools watery or nearly colorless, or containing white flocks resembling the washings of meat, and especially frequent at night. If there occur during the course of typhus, ulcers in the mouth, especially upon the tongue, if there is bleeding at the nose, or night-sweats, a short dry cough with stitches in the chest, delirium and sometimes convulsive movements, *Bärtel* also recommends calomel.

Trinks prescribes *Merc. solub.* for the following symptoms: dulness of the mind, a great tendency to sleep; heaviness of the head; tongue coated very heavily, and dirty white; stale, pappy, slimy and foul taste; considerable thirst; painful sensitiveness of the præcordium, of the liver, the umbilical and

ileo-cæcal regions; bilious, slimy and watery stools; depression of the vital forces, occasional profuse and *exhausting sweats*; paleness and hollowness of the eyes and face; dirty yellow complexion. When there has been a previous affection of the liver, and it is painful to the touch, and is swollen. In inflammatory irritation of the peritoneal covering of the intestines, and consequently painful tenderness of the abdomen; if these symptoms do not yield under the use of Bryonia. (In the last instance the sublimate is to be preferred to the Merc. solub.)

If the typhus is accompanied with any affection of the liver, Merc. dulc. or solub. is certainly very restorative. The same symptoms, when occurring in exanthematic typhus, indicate the choice of Mercury.

2. Asiatic Cholera.

From a post-mortem examination, we find the following similarities between cholera and corros. sublimate. In the cases of cholera, which quickly terminate fatally, and likewise after the sublimate, we find the meninges of the brain turgid with blood; the epicardium studded with ecchymoses; the trachea, bronchi and lungs engorged with blood, and occasionally pneumonia. Moreover while in cholera simply, the epithelium is thrown off, the sublimate produces a necrosis of the intestinal mucous membrane, and changes it into a reddish pulp, which is easily stripped off. Also, there is no swelling of the solitary glands, or the Peyerian patches and Brunner's glands, at the autopsy, in cases of poisoning from the sublimate. Oftentimes in cholera there are ecchymoses and effusions of blood upon the small intestine, and especially in the colon, and the mucous membrane is very often softened; these changes are also manifested in the sublimate poisoning. In many epidemics, diphtheritic processes appear in the colon, which also bear an analogy to the sublimate. In cases of cholera rapidly ending fatally, the liver is hyperæmic; the gall-bladder filled with dark brown gall; however, later on, it is not so.

If the patient dies within the first two days, the bladder is contracted, the urine is somewhat albuminous, and contains

cylinders; the kidneys are engorged with blood. These changes are also produced by the sublimate. It may also be seen from these remarks that the sublimate corresponds but little with the characteristics of cholera; the phenomena of the thickening of the blood, the cause of the symptoms of the stage of asphyxia, are not furnished by this drug. Especially does the swollen red face form a strong contrast to the *facies cholericæ*.

We will here endeavor to designate the period at which the sublimate should be the chosen remedy. We find the following similarity of symptoms: vomiting, diarrhœa, thirst, tenesmus, albuminous urine, slight convulsions, hiccough and syncope. But while the stools in cholera, as a rule, are painless and colorless, after the sublimate they are generally painful, bloody, and accompanied by tenesmus.

Exceptionally in the first stages of cholera, such symptoms appear, together with those above named, and then the sublimate would be the proper remedy. In sublimate poisoning we find pulselessness, but in the cholera it is induced by the thickening of the blood.

If we compare, as does G. Schmidt, cholera *with the* poisoning by cyanide of mercury, then we would rather give the preference to this drug than to the sublimate in the above symptoms.

3. *Yellow Fever.*

In reading Haenisch's description of yellow fever we were immediately struck with its similarity to acute mercurial poisoning. This is the picture drawn by this author. In apparently perfect health, while promenading, or at work, or when asleep, the patient is attacked with alternating slight chills and flushes of heat (or more frequently by a heavy chill). Simultaneously he feels very ill, is despondent, and tosses in bed, the face deeply flushed, the conjunctiva highly injected, and the eyes have a peculiar expression. Severe pain in the head, which is often monolateral, and pains in the joints, are seldom wanting; the temperature is considerably increased, and rises to 39° ($102\frac{1}{5}^{\circ}$ F.) a few hours after the commencement of the disease. The respiration is very superficial and rapid, the pulse generally full and frequent. (Already in the evening of the first or

second day a characteristic dirty smell from the patient may be perceived if the bed-clothes are raised.) The tongue is coated heavily white or yellow, has red edges, and retains the indentations of the teeth. The mucous membrane of the soft and hard palate is deeply reddened, which appearance is followed by œdema of this part; also the gums are greatly swollen, and frequently bleed. The epigastrium is sensitive to pressure; all food and drink taken into the stomach is immediately vomited. (The stool is generally hard, there is seldom diarrhœa. The region of the kidneys is the seat of acute pain.) The urine is scanty, concentrated, and often in the commencement of the disease shows traces of albumen. In many cases there is from the beginning of the disease a complete suppression of urine. All these symptoms are intensified within the next two days. (The temperature generally reaches its maximum, $40\frac{1}{2}^{\circ}$ (105° F.), on the second day.)

The sclerotica and the skin already on the third day, often however later, have a icteric color; the urine chemically reveals bile; the fæces retain their biliary coloring, at least it is exceptionally that they have a clayey look. Frequently hemorrhages occur from the nose and from the stomach, although the last are wanting in the lighter attacks, and they often only appear in the later stages. After the second stage, during which all the symptoms may yield, and convalescence occur, there generally follows a third, which we will now consider.

In this the mind is almost always clear, but great apathy overwhelms the patient, and it produces a terrible impression when these patients, with sunken faces, and lying in a state of collapse, speak quite thoughtlessly and with complete indifference to their condition. In a few cases, there is violent delirium, and constant getting out of bed, so that they obtain nowhere any rest (*Merc. vivus*). The pulse is frequently accelerated, sometimes retarded, but, as a rule, small and thread-like. (The icterus becomes intense, and the skin assumes a dark mahogany color.) Together with this very prominent jaundice appear the symptoms characteristic of this stage, the numerous hemorrhages. They vary in quantity and situation, generally occurring, however, from the mucous membrane of the nose and the

intestinal tract; and next in frequency from the skin, the genitals, and the respiratory organs. Nearly as important a symptom as the black vomit (of blood) is the suppression of urine, which is often observed in this stage, and which throws the patient into indescribable agony.

In many epidemics it has been observed that the parotid glands become inflamed, and have a marked tendency to suppurate; and also an extensive outbreak of boils. To complete the picture, we must point out the similarity of the pathological changes to those induced by mercury.

The color of the skin varies from a light yellow to a dark orange or mahogany color. Also the mucous membranes are tinged yellow. In a number of cases there are further cutaneous changes, as petechia, large ecchymoses, vesicles and pustules, scarlatina and erysipelatous inflammations, furuncles and carbuncles, and gangrenous destruction. The brain with its membranes, as also the spinal cord, present, as a rule, no particular alterations; if any, simply hyperæmia. Upon the pleura ecchymoses are found, but only in a few cases any exudation into its cavity.

The most constant and important changes appear in the abdominal organs. The mucous membranes of the stomach and intestines are almost without exception in an acute catarrhal condition, the blood-vessels, especially the venous, are highly injected and turgescient, and have an aborescent appearance. Frequently at the *fundus* of the stomach there are hemorrhagic erosions, although seldom ulcerations. The whole intestinal tract generally contains a quantity of black, thick blood, although it is sometimes thin, and of a tar-like look. The liver shows but unimportant deviations; occasionally it is somewhat enlarged, sometimes of normal size, or slightly smaller. The kidneys are said to be frequently swollen in the cortical portion, and occasionally have undergone fatty degeneration. In the parenchyma small abscesses are often found (vide sublimate, *Krankengesch.*, II. 41, 14). In the pelvis of the kidney are ecchymoses and catarrh.

From the picture of the symptoms and the pathology, we conclude that the yellow fever has a similarity to acute mer-

curial poisoning in many of its symptoms. The alterations found in the liver correspond most with calomel, although the icterus of yellow fever is to be regarded rather as hæmatic, while that of calomel is hepatic. The hemorrhages and the suppression of urine point to the *sublimate*. In the sublimate poisoning there are remissions corresponding to the second stage of yellow fever, which are followed by an exacerbation that terminates in death.

In the homœopathic literature, however, these two remedies receive no mention. *Cartier* makes no use of Mercury, but gives only *Acon.*, *Bellad.* and *Arsen.* *Martius* recommends in the first stage *Acon.*, *Pulsat.*, *Bellad.*, *Nux vom.*; in the second, *Nux*, *Acid nitr.*, *Merc. sol.*; and in the third *Arsen.*, *Arg. nitr.*, *Digit.*, *Phosphorus*. *Goding* also mentions *Merc. sol.* as the most important remedy. *Holcombe* gives the following indications for *Merc. sol.*: "Yellow color of the skin; redness of the eyes; injection of the blood-vessels of the sclerotica; photophobia; paralysis of one limb or more; tongue with moist, thick, white coating, or covered with dry, brown mucus; fæces variable; irregularity of the pulse, or the pulse quick, strong, intermitting, or soft, fluttering. Great drowsiness, or sleeplessness, from nervous excitement; feeling of languor and weakness; rapid loss of strength; vertigo or severe headache; severe spasmodic vomiting of mucous and bitter stuff; burning pain in and tenderness of the stomach; constipation or diarrhœa; evacuation of mucus, bile or blood; coldness and cramps of the extremities; an erethistic condition of every organ. Anxiety and restlessness; loss of memory; timidity and mental depression; rage."

Gerhardt recommends *Merc. (sol.)* in the first and second stages when there is yellowness of the skin, thickly coated tongue, hemorrhages from the pharynx and the gums, tenderness over the stomach, thin, also bloody, evacuations, profuse perspiration, which is very exhausting; coldness in the epigastric region; pulse rapid and irregular, or weak and intermitting.

Porte, from his experience in Brazil, considers mercury the most potent remedy, if, before the black vomit occurs, there is a tendency to an adynamic fever, with diarrhœa and abdominal

pains. He does not consider, however, that mercury is the chief remedy in this disease.—(*Journ. de la Soc. Gall*, 1859; *Allg. hom. Zeit.*, B. 60.)

4. *Dysentery.*

We divide dysentery, with Virchow, into the catarrhal and diphtheritic varieties. The catarrhal commences with great hyperæmia of the mucous and sub-mucous tissues. The mucous membrane, after evacuation of the intestinal contents, is covered with a thick layer of mucus of a mottled reddish color, which is easily washed off. The color of the mucous membrane is deep, dark red, with numerous black points; the redness is, however, mottled and streaked in correspondence with the mucous membrane. The submucosa contains a mass of distended blood-vessels, and consequently appears injected and streaked red. In the stage of sero-purulent infiltration, the mucous membrane is somewhat swollen, paler, and of a whitish-red color, the follicles swollen and encircled by reddish wreath-shaped patches. The submucosa is thickened three to five fold, and upon pressure exudes a considerable quantity of serous fluid. There is also swelling of the muscular tissue. In the stage of purulent destruction of the mucous membrane, there are numerous island-like patches, having irregular edges and of a bluish-red color, which are dispersed to a greater or less extent over an even surface, having a reddish or yellowish-brown color. These patches are the remnants of the destroyed mucous membrane, while the smooth surface upon which they are situated is the submucosa. In the diphtheritic variety the whole of the large intestine is of a dark bluish-red color, and the serous covering is finely injected. The inner surface of the intestine, from the lower portion of the ilium to the rectum, appears of a whitish-red color, but mottled blackish, greenish, or dark red, in various curved figures, and its surface is exceedingly uneven, covered with rugosities and depressions. In the severest forms the mucous membrane is in great spots degenerated to a blackish charred mass. In the places where, between the tumefactions, lie cracks and fissures, there appears upon the muscular tissue only a sparse, friable mass as the

remains of the mucosa and submucosa which have been destroyed, and become atrophied from the pressure. These are as it were transformed into a copious extravasation, composed chiefly of blood and somewhat of pus, and of a stiff and amorphous fibrinous exudation.

This substance which has taken the place of the mucous membrane, appears as a net-work of glistening fibres and a great mass of extravasated blood. The peritoneum of the inflamed intestine is deeply injected, and pours out frequently a puro-fibrous exudation; occasionally the circumscribed peritonitis becomes general, especially after perforation of the intestine.

The liver is frequently hyperæmic. The kidneys are venous—hyperæmic. In protracted cases there appear, as metastatic inflammations, purulent peritonitis, pleurisy, pseudo-erysipelas, gangrenous bed-sores, and noma.

In the poisoning by the sublimate we find the following changes in the intestinal canal. The canal is reddened below the ileum, and the more dependent the part the more intense it is. The lowest portion of the rectum almost entirely dark (Case of poisoning No. 33, 50). The small intestine of a violet-blue color; the large intestine injected especially in the rectum, and directly above the anus, gangrenous parts (No. 33). The consistency of the small intestine and its dark red color throughout, are especially noteworthy. When it is cut in long strips, there appear adhering around the edges a dark red pappy substance which, together with the destroyed mucosa and muscular layer, can be easily scraped away with the scalpel, and it has the appearance of dark putrified blood. If the remaining portion of the intestine is held up to the light it appears as a membrane traversed by but few blood-vessels. But perforations of all the layers of the intestine do not appear (No. 32). In the lower two-thirds of the ileum there is inflammation of the mucous membrane which is intensified below the cœcum and studded with small ulcerated patches (No. 52). Peritoneum deeply injected, intestines turgid with bright red blood (No. 38). Intestines much inflamed (Nos. 36, 37, 38). Intestines greatly inflamed and partly blue (No. 37). In the duode-

num and the remaining intestinal canal nothing abnormal observed excepting a few valvulæ conniventes in the injected jejunum or ileum.

In comparing the two processes, we find a striking similarity as in the various cases of poisoning we find changes similar to the different stages of dysentery; also we observe in both that the pathological changes are intensified the nearer we approach the anus. Let us now look at the symptoms in the living.

MERCUR. SUB. CORROS.

Severe pain in the intestines; abdomen painful upon slightest pressure; severe colic; great tenesmus; evacuations of a green color; bilious stools, with severe abdominal pains and great tenesmus; pappy, yellow, bilious diarrhœa in children; in a little girl of four years, yellow watery stools, with colic pain in the large intestine, and bloody mucus. Mucous stools; forty-seven mucous evacuations in a robust man after the first dilution; frequent and very offensive stools; watery, mucous and offensive diarrhœa; evacuation livid, grumous and very offensive; fæces mixed with mucus and coagulated blood; constant burning in the rectum; defecation with tearing pain followed by burning in the rectum; tenesmus with bloody mucous stools, with almost continuous abdominal pain, and unbearably painful, and almost fruitless bearing down and straining; a frequent evacuation of bloody mucus day and night; numerous offensive stools, frequently repeated, accompanied by great tenesmus, and later on, greenish-black stools; severe colic and cardialgia; tenesmus with dysenteric evacuations; stool of mixed blood and mucus; numerous ill-smelling stools, quickly following one another, with great tenesmus; sparse evacuations consisting of blood and mucus; copious and bloody stools, with great pain in the sigmoid flexure of the colon; bloody stools with pain in the rectum; numerous stools mixed with blood, and two composed wholly of blood and mucus; evacuation of a dark color mixed with blood and very painful; bloody diarrhœa; bloody defecations with cramps; loses six pounds of blood by the rectum; bloody diarrhœa with pain in the rectum; evacuation of bright red blood after the stool; after the stool repeated tenesmus.

Merc. solub.—He feels a desire to go to stool every minute, with tenesmus, but without effect. Constant desire to go to stool, but there was but very little discharge, with pinching in the abdomen. Anxious straining at stool, always accompanied by great nausea and pressure in the temples before and after stool. Much straining at stool and little discharge. Violent urging which often compels him suddenly to go to stool. Before the diarrhœic discharge there is chilliness and tenesmus, and during the chilliness there are flushes of heat. He is very much exhausted after an evacuation, accompanied by much colic. Discharges of bloody mucus accompanied by colic and tenesmus. Fæces, though not hard, have mucus and blood in them. Papescent stools with mucus. Frequently the urging to stool is so great that if not obeyed at once it passes off involuntarily, although it is only papescent stool. Diarrhœa at night. Diarrhœa striped with blood. *Bloody discharges with painful sensation of excoriation about the anus. Green, slimy, acrid stools, which excoriate the anus.* Diarrhœa of green mucus, with burning of the anus and protrusion of the rectum. Diarrhœa with cutting and pressing in the anus. Burning diarrhœa. Burning in the anus. Diarrhœa with much blood for many days. *Soft stools are accompanied with burning pains in the anus.* After stool there is always burning in the anus. Discharge of blood after discharge of fæces; soreness of the anus.

When we compare the symptoms of these two preparations, we shall at once perceive that *Mercur. solub.* is best adapted to milder cases of catarrhal dysentery with mucous discharges, while corrosive sublimate corresponds to the most violent cases with bloody, fœtid discharges; violent tenesmus, intense pain about the umbilicus; and strangury. These symptoms are so characteristic of *corrosive sublimate* that they are even made to appear by the external application of the remedy, as we have seen from cases of poisoning (*Id.* 4, 5, 6, 10, 14, 15). Corrosive sublimate acts better in dilutions, while *Mercur. solub.* should be given in triturations; both in lower potencies. As the doses should be less frequently repeated after improvement begins, it is desirable to repeat the dose after every discharge. It is hardly necessary to mention that other remedies may also be

used according to circumstances, although Mercury should be considered as a specific in dysentery. Collateral symptoms indicating Mercury are: headache, thirst, white-coated tongue, cutting colic, tenderness of abdomen to the touch, prolapsus ani (Mercur. sol.), hot dry skin, sleeplessness, nocturnal aggravations, alternate heat and cold, etc. Finally we would mention that *Calomel* produces bloody stools. The following symptoms are gleaned from a few cases of poisoning: about twenty discharges daily, diarrhœa, cutting colicky pains and eighteen watery, greenish, slimy stools, also tinged with blood. Buchner recommends it in the dysentery of lymphatic children. *Biniiodide of mercury* (Mercur. bijodatus) in those afflicted with goitre. *Mercur. cyanat.* (cyanide) furnishes the following symptoms bearing upon dysentery: Vomiting and diarrhœa alternate for twelve hours, so that emesis and stool occurred twenty or thirty times. Eight offensive green mucous discharges in the night. Copious discharges and violent colic (at once). General feeling of coldness, followed at once by loathing, vomiting and diarrhœa, with violent colic (at once). Burning sensation in the stomach, and thirst. Epigastric region and abdomen painful on pressure. Violent colic aggravated after every stool. Two thin stools tinged with blood, without discharge of urine. Slimy diarrhœa with tenesmus, at night. Constant urging to stool with tenesmus, very tormenting, but rarely accompanied by discharge of fæces; the fæces were mixed with blood. Violent urging, followed by liquid stool (after ten minutes), with much exertion; six liquid offensive stools within eight hours.

The general features of the remedy indicate prostration of strength, and may be found described in the section on diphtheritis. In the records of post-mortem examinations we find, in the first and second instance, that the changes wrought in the jejunum correspond with the third stage of catarrhal dysentery. The mucous membrane of the jejunum is much thickened, very dark red and in some instances even blackish; in others apparently gangrenous. The redness exhibits the same appearances in the cœcum; in the ascending colon it becomes pale; again darker in the transverse colon; paler again in the

descending colon, and darker in the rectum. The mucous membrane of the intestines is generally thickened, and in some places it is granulated, especially in the small intestine. In all points where it is elevated in this manner, much infiltration is visible caused by serum in the submucous connective tissue.

These scanty observations of three cases of poisoning, justify the conclusion that *Mercur. cyan.* is indicated in dysentery, especially in adynamic cases. There certainly may be epidemics (which also may be complicated with diphtheritis) to which it might correspond as epidemic remedy.

5. *Diphtheritis.*

In the catarrhal form which is not to be distinguished from common angina, there are to be observed small spots of the size of a pin-head to that of a split-pea; and delicate dew-like dimness or coatings in small number which sometimes touch each other in their ramifications and become confluent. When these coatings are thrown off the subjacent mucous membrane remains intact. The croupous form is characterized by dark livid redness of the tonsils, arch of the palate, and posterior wall of the fauces: by serous infiltration of these parts and of the uvula, and by deposit of a false membrane two or three millimeters in thickness, which finally becomes leathery and dense. The subjacent mucous membrane is deprived of its epithelium, and after the separation of the false membrane a purulent coat is to be observed, beneath which the process of healing is established in favorable cases. In the septic forms of the disease the membranes assume a dirty grey or brownish appearance, they become soft and friable, and in some places they become changed into a greyish-brown, pap-like mass. On removing this decomposing mass, the surface of the subepithelial tissue is found to be smooth, intact, or in places destruction of substance, representing either a shallow ulcer with uneven, easily bleeding base, or a deeper ulcer with greatly excavated edges, the base of which, however, continues to be covered for some time with greyish dirty coating and gangrenous debris of tissue. It is not difficult to understand why, in a condition of this kind, capillary hemorrhages are of frequent

occurrence. The lymphatic glands on both sides of the neck form swellings of large circumference. The periglandular and subcutaneous connecting tissue may swell to such a degree that the line of demarcation between face and neck becomes quite indistinct. In gangrenous diphtheritis, greyish-white thick deposits are formed beneath which the mucous membrane, which is dark red and exceedingly tumid, is destroyed in the course of twelve to twenty-four hours; this is accompanied by carrion-like or faecal odor, and the formation of lardaceous ulcers with red, jagged and undermined edges.

Now when we examine the pathological changes which mercury is capable of producing in the pharynx, we find under *Mercur. viv.*: inflammation of the palate. Angina. Croupous exudation upon the velum palati (No. 49, 50, 51). Ulcers of the pharynx (No. 24, 35, 48). Swelling of the submaxillary glands (No. 25, 26, 48, 49, 50).

Corrosive sublimate: Mucous membrane of pharynx is white and rough to the touch. Pharynx is livid and swollen and may be crushed by pressure; gangrenous; it has the appearance as if it were covered with bran (No. 30, 32). The membranes upon the palate may be drawn out with the fingers; in the fauces there is an ulcer as large as a pea, and upon the left of the soft palate the solid parts are becoming detached (No. 8). Violent swelling of the arches of the palate, uvula and pharynx; on the latter there is formation of grey, jagged masses of false membrane (No. 43). The velum palati is covered with a greyish-white, firmly adherent eschar (No. 56).

Mercur. dulcis.—Throat is swollen inside. Ulcers in pharynx, palate (gums and tongue) closely studded with aphthæ. Deep bleeding ulcers reaching into the choanæ. Inflammation in the throat.

Mercur. cyanide.—The mucous membrane of the pharynx is red and vascular. Upon the arch of the palate and tonsils there has formed a greyish-white, soft, superficial layer (at the same time there is a diphtheritic ulcer in the mouth and another around the anus). We are justified in concluding that the mercurials are appropriate and even specific remedies in the first three forms of the disease. But in the gangrenous

forms we shall have to look to other medicines, such as Arsen., Kreosote, Ailanthus, Arum triph., Lachesis, etc. The formation of an actual false membrane is produced by *Mercur. viv.*, Corrosive sublimate and *Mercur. cyanide*.

Mercur. solub. is probably indicated only in the catarrhal form, and in mild cases of croup of the fauces; but we refer the reader to the symptoms of angina.

Although *Mercur. cyanide* has not been proved, and we possess only three cases of poisoning with the same, we nevertheless find that in the latter the principal symptoms of diphtheritis are represented. They are as follows, together with the above-named pathological changes: The entire mucous membrane of the fauces is much reddened, together with dysphagia. Swallowing is very difficult. Violent dysphagia. Scratching in the pharynx; the latter is red, vascular and deglutition difficult. *General weakness* which soon increases to actual *faintness*, so that he remained for an uncertain length of time in a *state of unconsciousness*. *The night was spent in sleeplessness*; he was *much excited and talked incessantly*; became enraged at his attendants and *talked incessantly in his rage*; the next night, also, was spent in this manner; the patient awoke with *violent headache*, nausea, increased thirst, much redness of fauces and with dysphagia. *Violent headache with nocturnal fever and sleeplessness*. With headache and vertigo there is nosebleed; the face is pale, livid and distorted. The nosebleed lasted to the fifteenth day. *Nausea, soon followed by vomiting*. Retention of urine for five days; the urine collected on the seventh day was of acid reaction; microscopic examination revealed *straight and twisted urinary tubules studded with fine granular detritus*; no blood corpuscles; chemical analysis exhibited much albumen.—(Compare febrile symptoms.)

Besides corresponding to the local symptoms, the similitude also becomes evident in regard to the concomitant symptoms, of which the most important have been italicized.

Villers, who extols this preparation as a specific, says: "In all cases of diphtheritis, which were very numerous, including every age and sex, the effect of cyanide of mercury was to reduce the progress of the disease together with its visible

changes in the tissues, in a space of twelve hours after the exhibition of the first dose of the medicine. And in the absence of serious complications convalescence was fully established in three days, so that not the least loss of strength was observable. The writer has had very extensive opportunity of making this observation during a period of nine years, so that the result has become of great statistical value to him, an experience rarely gained in medical practice." He recommends higher dilutions, rising upward from the 12th centesimal. This preparation deserves the preference to other mercurials, especially on account of the great prostration peculiar to hydrocyanic acid, a chief symptom also of diphtheritis.

Mercur. corr. (corrosive sublimate).—Difficult deglutition as if the throat were closed up. Swallowing very difficult and painful. Tonsils are swollen and covered with ulcers. Painful uvula. Neck and back of the neck are very much swollen, especially on the right side. On attempting to swallow there is retching and vomiting, because the internal parts of the mouth are so tumid. Excruciating pain at every attempt to swallow. Fauces are very much inflamed. Scratching hoarseness back in the fauces, with frequent inclination to scrape the throat. Swelling of the pharynx with danger of suffocation. Inability to swallow even liquids, accompanied by heat in the mouth, tongue and pharynx, as if caused by burning coals, followed next day by expectoration of liquid and coagulated blood. The membranes upon the palate can be drawn out with the fingers; in the fauces there is a small ulcer, and on the left of the soft palate there is separation of solid parts; copious salivation, which afterwards becomes bloody (after external application of the poison—No. 8). Cicatrices in the fauces; there is only a trace of the uvula (in a case of chronic poisoning). Pharynx is dark red, painful to the touch. Dysphagia. Stupor; somnolence. Profound sopor. Sleep is restless at night, interrupted by frequent waking. Sleeplessness till toward morning. Regarding other symptoms, see chapters on diseases of other organs.

Mercurius iodatus has been used in the form of protiodide and biniodide by several physicians, especially by Madden,

Black and Kirsch in single epidemics, and with very favorable results; while in other epidemics it did not meet their expectations. Of this remedy we have no symptoms relating to the subject under consideration, as we are without provings or cases of poisoning.

Black recommends *Mercur. iodatus* in swelling of the tonsils, with yellowish-white membranous patches and offensive breath. It has again been recommended recently in cases where the diphtheritic process extends to the larynx. In consideration of the specific effect of iodine upon the larynx, and especially of its effects in croup, the above indications will deserve attention. If the disease spreads upwards into the cavity of the nose, then corrosive sublimate is indicated next to *Mercur. iodatus* (see *ozæna*).

In secondary diseases the mercurials are seldom to be selected.

Thus we have proved the applicability of mercurial preparations, and especially of cyanide of mercury, according to the similitude of symptoms. If, according to recent discoveries, the diphtheritic fungi (*micrococcus*, *bacteria*) are regarded as the cause and not as the result of the disease, we may, nevertheless defend the application of mercury also from that point of view. The antiparasitic effects of that metal were known already to the Arabs. If it destroys animal parasites, we may well conclude that it will exert the same influence upon those of vegetable nature, particularly as we have learned from the experiments of *Buchner* with corrosive sublimate and fumes of mercury, that the latter destroy vegetable life. In passing, we will remark that we regard fungi as carriers of morbid matter, but not as producers of the disease itself. For the mania which the fungus theory has created has reached such a degree that *Billroth* declares that all contagious diseases are produced by one and the same kind of fungus. If that were the case, why do not several kinds of infectious disease appear at once?

6. *Measles.*

As quicksilver is applicable only in single symptoms, and secondary affections, such as ophthalmia and otitis, swellings

of lymphatic glands, diarrhœa, septic symptoms, such as nose-bleed, bleeding of the gums, bloody discharges from the bowels, angina, etc., the reader will have to consult the paragraph on these diseases.

7. *Scarlet Fever.*

The same remarks apply also to scarlet fever. Mercury is applicable in violent angina tonsilaris, diphtheritis, parotid swellings, or those of the submaxillary or lymphatic glands, when they are not particularly painful. It is also used in chronic otorrhœa, salivation, ulcers of the mouth.

Lobethal used *Mercurius sol.* effectually in the beginning of ascites, when *Helleb. nig.* was of no benefit. *Mercur. viv.* had a like good effect, but Calomel was more incisive in the 2d trit., and also in a desperate case when it was given in one-twelfth to one-quarter grain doses. *Prof. Lilienthal* uses *Mercur. sol.* when the following symptoms are present: The mouth is ulcerated and covered with little vesicles; when there is salivation and very foul breath, dirty yellow coating on the tongue; great thirst; ulcerated throat and tonsils; swelling of all the cervical glands; itching and restlessness; perspiration aggravates the symptoms. *Mercurius iodatus*: very violent angina, induration of the parotids, cervical glands and tonsils. Diphtheritic affections with great exhaustion of muscular strength. Inclination to lie down, but aggravation during rest and in the warmth of the chamber. Very violent throbbing, boring pain from within outwards deep in the left ear. Urine is dark and copious. It is useful after Lachesis, when there is loss of voice, hoarseness, and when the patient can only whisper.

8. *Small-Pox.*

Among the symptoms bearing upon this disease, the pustules are also found among the effects of mercury, which also produces the febrile symptoms peculiar to that disease, as well as the headache, nausea, vomiting, nosebleed, salivation, angina, hoarseness and cough, lachrymation, photophobia, hemorrhages, etc. The mercurial pustules will be considered under the head of cutaneous diseases. They are found under *Mercur. viv.* (No.

1, 4, 5, 6), and several older writers enumerate pustules among mercurial exanthemata, as we shall see hereafter.

Under Corros. sub.: Burning and redness of the skin, a bulla forms containing a yellow serous liquid raising the epidermis and after being punctured it dries up with desquamation; pustules on the forehead. Subjective symptoms: Itching in various parts of the skin which often assumes a fine prickling and burning character; itching ending in prickling in the middle of the back in the skin; she wakes at one A.M. with such intolerable itching of the scalp that scratching with the nails is not enough, she is forced to make use of the comb; increased warmth, uncommon swelling, redness and blisters of the skin.

Calomel: Large pustules over the entire surface of the body; pustule filled with matter which desiccates; intense burning and redness of the skin.

Mercur. sol.: Very small vesicles containing a watery transparent moisture make their appearance on different parts of the body before day-break; pustules on the upper and lower extremities with pus at their head and itching; eruption resembling variola directly above the anus, with pressive pain increased on sitting down; a pustule as large as a pea and filled with matter on the skin. Subjective symptoms: Itching converted into a pleasurable sensation by scratching; severe itching over the whole body causing her to scratch continually, especially at night, accompanied by redness and heat of the face (*vide skin*).

We have mentioned here not only the vesicles filled with pus, but also those filled with serum, as we do not seek *æqualia* in our medicines but *similia*. It is, however, a very general property of the mercurial preparations to produce suppurations.

J. Hermann classes the pustules as one of the typical forms of mercurial exanthemata. The *eczema mercuriale criticum* described by Dieterich and the graver forms of *e. symptomaticum* bear a marked resemblance to variola (*vide*, Diseases of the Skin). *Jussieu* mentions a pustular eruption observed by him in the laborers in the quicksilver mines of Spain. *Alley* saw eight cases of pustular eruption, following the abuse of mercury, all ending fatally. It is in small-pox that we find the

symptoms common to all the mercurial preparations. *Mercur. sol.*, however, has been most extensively used; the majority of authors recommend this preparation to control the suppuration in the eruptive and suppurative stages in uncomplicated cases. *Hartmann* says: Where the suppurative fever is high in consequence of the great number of pustules, and if marked affections of the nose, throat and eyes and perhaps salivation are present, it will not be easy to find a more specific remedy than mercury. *Rummel* observes that the salivation occurring in the suppurative stage is of itself an indication for this remedy. According to *Kreussler*, *Mercur. sol.*³⁰ in daily doses is the specific for the typical form of small-pox, called simple or catarrhal variola, from the attending catarrhal affections. The fever accompanying the simple forms will scarcely call for Aconite (?). Only here and there a dose of *Bellad.*³⁰ may be advantageously given before the appearance of the eruption, after which *Mercurius* may at once be allowed to follow. Mercury is also the chief remedy in varioloid. *Bähr* distinctly characterizes the sphere of mercury in small-pox in the following words: "After the appearance of the eruption the patient feels tolerably well, but just here, we think, is the proper time to administer medicine in order to prevent the suppuration which can never be foreseen, and in general to keep the disease within its normal limits. We have but one remedy with which to effect this, and this is mercury. In the third stage it should never be given in frequent doses. It is difficult, as a matter of course, to demonstrate its efficacy while we have no opportunity for the comparison of a large number of observations, but so much is certain: if any medicine is to be given, mercury is the most appropriate. If it is possible to prevent, by its means, the suppuration of abscesses and small furuncles—and this occurs in practice often enough—we are warranted in looking for a beneficial effect upon the suppuration of the variola-pustules, particularly as they present a most striking and detailed similarity of symptoms." *Kafka* on the other hand expresses himself to the effect that he has observed no satisfactory results from *Tart. emet.*, Mercury, Thuja and Variolin. *Teste* recommends *Corros. sub.* in the eruptive stage. *Jahr* and *Gerhardt*

enumerate the following indications for mercury: Moist tongue, sore throat and copious secretion of saliva, cough and hoarseness, determination of blood to the head. Irritation of the conjunctiva, the nasal and oral mucosa. *Hughes* holds quicksilver to be the best remedy when the suppurative fever shows no malignant character. While *Guernsey* makes use of this remedy in varicella with thirst and salivation, when the pustules are maturing and grow yellow; he does not mention it under small-pox. In extreme cases of angina with swelling so excessive as to threaten suffocation *Bolle* uses 0, 1 grm. corros. sub. to 120 grms. of water as a gargle.

From the symptoms of mercury and the recommendations quoted, it follows that this medicine is only admissible in uncomplicated cases of moderate intensity, for the control of suppuration and the symptoms arising from it. It has been suggested also in the diarrhœas of the last stage. In the hæmorrhagic form we might consider corrosive sublimate alone of all the mercurial preparations for the bloody vomiting and stools, but we possess much more reliable remedies in *Arsen.*, *Mur. ac.*, *Lachesis*, *Rhus tox.*, *Secale*, etc., for this form.

For the intercurrent inflammations we must refer to the respective chapters. *Bähr* recommends in a general way for these contingencies *Mercur.*, *Bryonia*, *Phosphor.*, *Hepar*, *Arsen.*

9. *Sweating Fever (Miliaria sudatoria).*

This rare epidemic disease, the existence of which is denied by *Hebra*, runs its course with the following symptoms: In the prodromal stage, which lasts from two to three days, the patients complain of excessive itching of the skin, dryness of the mouth, greatly increased thirst, debility, headache, lame feeling of the extremities, pressure at the epigastrium, sense of suffocation and occasionally of ringing in the ears and vertigo. The onset of the disease, which usually falls in the afternoon or evening hours, is usually marked only by slight chilliness, only in rare cases by severe rigors, followed by a profuse and continuous sweating. The breaking out of this sweat is attended with a sense of prickling and stinging in the skin, and is so excessive as to speedily soak through bed-clothing, ma-

trasses, etc., and often almost macerates the skin. The perspiration has an acid reaction as a rule and an unpleasant odor. At the same time fever sets in, the pulse is accelerated above 130 in a minute; the skin is burning hot; a sense of constriction oppresses the chest and throat, and an anxious feeling seizes upon the præcordia. The epigastrium is found to be exceedingly sensitive to pressure and painful. Exacerbations and remissions of these phenomena are not unusual.

By the third or fourth day of the disease the eruption makes its appearance. This consists almost invariably of small rounded spots of irregular outline two to five m. m. in diameter. Occasionally they are so numerous that the surface appears of a uniform redness; or they run together to form an eruption not unlike that of scarlet fever. After some hours vesicles show themselves in the centre of each, so minute at first that they are only to be detected by lightly pressing the finger over the surface or with the use of the magnifying lens. They soon enlarge, however, and reach the size of a millet seed, and occasionally even of a pea. They contain a clear liquid which gradually becomes milky, and finally yellowish purulent. Ultimately after two or three days they break and dry into crusts which are thrown off in the form of scales. The exanthem extends in successive crops, each of which is usually accompanied by fever, taking its beginning about the neck and breast from which it spreads to the back and extremities, rarely to the abdomen and scalp. Headache, vertigo and sleeplessness are very constant accompaniments of the disease, and very commonly loss of appetite, bad taste, nausea, rarely vomiting, and moderate thirst are also present. The most invariable symptom is persistent constipation. The urine is turbid, highly colored and scanty; here and there entire suppression of the urinary secretion has been observed, or strangury and pain in the region of the bladder. A more or less extensive desquamation forms the last stage of the disease.

The sense of constriction and dyspnœa occasionally reach such a degree that the patients cannot find a moment's rest; they throw themselves about in the bed, and grow furiously delirious. In some cases both the sweat and the exanthema

are wanting and the patients die with cramps of the muscles or convulsions.

At times the course of the disease is very sudden in the sweating stage. The patient, who has been quiet up to this time, utters a few incoherent words, his face becomes cyanotic; the carotids and abdominal aorta pulsate violently, and fatal collapse follows quickly.

Cases occur, too, in which a grave typhoid stage with somnolence or coma, fainting, fuliginous coating of the tongue and teeth, profuse hemorrhages from the nose, uterus, etc., leads to a rapidly fatal termination. At other times an angina accompanies the disease, more often a bronchitis of varying intensity, and in some epidemics diarrhœa.

If we compare with this the febrile phenomena of mercury, the changes produced by it upon the skin (eczema, sweat) as well as that characteristic symptom of quicksilver, copious exhausting perspiration giving no relief, we shall be led in this disease, after having given Aconite, to mercury. In milder cases *Mercur. sol. or vivus* will suffice; in the graver forms we must resort to corrosive sublimate, while in the most severe cases we shall select *Arsen.*, *Bryonia*, etc., according to the symptoms.

In conclusion we will quote Dieterich's description of the *miliaria mercurialis*: The disease is ushered in by a paroxysm of fever of an almost torpid form. The exanthem appears at first on the breast, followed on the next day by a further eruption, accompanied by a similar form of fever, extending over the back and loins. In this way the eruption breaks out in successive crops until, after the fourth or fifth day, the eruptive stage is completed. The sudamina stand densely crowded together and are white. The fever does not subside after the full appearance of the eruption, but continues with regular evening exacerbations. Sleeplessness, slight deliria, even convulsions and other nervous symptoms set in. The pulse is small, soft, easily compressible and but little accelerated; the urine is pale; the skin is bathed in sweat, having, not an acid, but a musty smell. Some portions of the eruptions recede, while others remain. The febrile action of each succeeding

day throws out the receded portions again, but they soon disappear. In this rising and falling the nervous phenomena increase, the urine becomes changed, the pulse intermits, the eruption recedes entirely; the skin becomes dry and the patient dies in a comatose state.

Falk, who repeats this description almost verbatim, adds that hoarseness, great oppression of the chest, troubled respiration, violent cough, fixed pain in the chest, and even hæmoptysis and attacks of suffocation occur at times. The patient's tongue is usually white in the beginning, growing yellowish and brown in the later stage and in exceptional cases moist and clean. The cause of death is an extensive suppuration of the skin followed by great emaciation, hectic fever, trembling of the limbs and even pulmonary consumption. These final symptoms enumerated by Falk appear to belong more to a pseudo-erysipelas than to the miliaria.

Are other proofs called for to substantiate the similarity? Aconite, which is recommended by Hughes alone, will hardly suffice in all cases. Bähr says that mercury is to be considered in this disease. Kafka merely mentions the *Sudor anglicus* without discussing its therapeutics.

10. *Dengue* (*Breakbone Fever*).

This disease which has occurred epidemically in the East and West Indies, in lower Egypt, the Arabian coast and in Spain, usually sets in suddenly. When a prodromal stage occurs it consists in slight rigors, headache, pains in the loins and along the spine, and a burning sensation in the stomach. With a high fever, painful swellings of several joints (rarely less than seven or eight) make their appearance; respiration becomes hurried, the skin dry and burning hot. The fever subsides after the third to the seventh day, with the occurrence of profuse perspiration or epistaxis. After a period of one or two days a second paroxysm of fever follows, accompanied by an eruption on the skin; the arthritic affection is rarely renewed. During the first attack violent boring, burning pains are felt in the muscles and bones, with stiffness of the affected limbs and swelling of some of the tendons is said to occur.

The extremities seized upon are much swollen, immovable, painful and excessively sensitive to the touch or pressure. The pains are described as rheumatic, but de Wilde conceives them to be arthralgic, as he has observed isolated, painful points and the affection of single nerve trunks.

The exanthema which is accompanied by severe itching of the skin, and which rarely makes its appearance in the first attack of fever, resembles roseola at times, at others the lichen tropicus, measles, scarlet fever or urticaria.

In isolated cases it is complicated with conjunctivitis, profuse lachrymation, inflammation of mucous membrane of the nose, mouth and fauces, or of the lymphatic glands. Throughout the whole course great thirst, loss of appetite, perverted taste and nausea, rarely vomiting, are present. The tongue is white or covered with a greenish-yellow coating; the urine is dark, but without albumen. During the fever the patients are restless, sleepless and affected with headache, especially in the forehead; some have delirium at night. Emaciation sets in early; debility, especially of the legs, remains for a long time after convalescence. Not unfrequently pericarditis is left behind after the attacks, but disappears in the end. Cases occurring in various stages of pregnancy have caused miscarriage.

If we bear in mind the symptoms of the fever, the exanthema and the arthritic affection (vide acute articular rheumatism), as well as the complications, we shall see at once that in some cases mercury will be indicated; but it will be suitable only in the milder cases and in the form of *Mercur. sol.* In exceptional cases corrosive sublimate will be called for (extreme languor; weak, rapid and small pulse), while in extreme cases *Rhus tox.*, which has been recommended by Aitken, is to be preferred; *Arsen.* too may be of service.

11. *Influenza.*

While we refer to the respective mercury symptoms for the symptoms of coryza, conjunctivitis, catarrh of the fauces, headache, to which they correspond more or less accurately, we will mention here those of the larynx and bronchi.

Mercur. sol.: Dry cough; exhausting cough, short and dry

from a tickling irritation felt in the upper part of the chest, more especially while speaking, which it almost prevents; cough which feels and sounds as if the air-passages were dry, with pains in the chest and loins; severe cough at night, caused by an irritation which rises from below, as if from the stomach, and occurring during waking and sleeping, without the desire to sit up; on alternate evenings violent, shaking cough; violent cough at night on trying to sleep as if the head and chest would burst, followed by strong desire to stretch himself; while coughing he feels as if he would choke; shortness of breath and hoarseness; sense of anxiety under the sternum, causing him to take deep inspirations; oppression in the region of the sternum; painful oppression of the chest; when he lies on the left side he suffers from dyspnœa and has to draw a deep breath; a pressive pain in the side of the sternum going through to the back, even while at rest, in the evening, followed by a sore pain; burning sensation in the chest extending to the neck; pressing sensation in the left side of the chest preventing deep inspiration; pains in the chest on stooping, in the form of isolated stitches; only while sneezing or coughing a stitch in chest in the upper and anterior portion, and through to the back (the same from breathing, symptoms 744). Stitches and constriction of the chest; single short stitches in the chest, more in the forenoon and while walking; in the left side of the chest during inspiration and at other times five or six severe stitches; sore pain in the chest.

Mercur. subl. corr.: Hoarseness; voice rough and loose; extreme aphonia; irritability of the larynx; burning and stitching in the trachea, with aphonia in the morning, for two hours; desire to cough coming from the larynx, toward evening, with dryness of the fauces and dry cough; dry cough; occasionally through the day attacks of spasmodic cough; attack of cough of a spasmodic character; cough with mucous expectoration; respiration slow and labored; respiration with much effort and anxiety; difficult breathing; pulse 112; breathing deep and slow; breathing loud and rattling, dyspnœa; cramp which prevents his breathing, especially on walking; mucus adheres to the throat which will not loosen, with constriction of the throat

and inability to swallow; sense of constriction of the chest; respiration is effected by means of the costal muscles, is labored and irregular, with a small contracted and irregular pulse; oppression of the chest; constriction and oppression of the chest; rattling in the chest; dyspnœa; piercing pain at night, transversely through the whole chest; throughout the whole day stitching in the chest in the left mammary region on taking a deep breath; stitches in the right upper chest, deep-seated, scarcely increased by deep inspirations; stitching pains in the chest; slight fugitive stitches through both sides of the thorax; frequent stitches shooting through the chest like lightning; stitch in the side, shooting pains in the right side of the chest; difficult breathing. Post-mortem appearances: laryngeal mucosa greyish, injected; larynx, trachea, bronchi deep purple, trachea pink; trachea slightly inflamed; bronchi bluish-pink; smaller bronchi filled with mucus.

Mercur. vivus: Hoarseness and cough with fever; cough without expectoration; severe cough with expectoration; catarrhus suffocativus; stitching pains in different parts of the chest; cough with pains in the left side and left shoulder; severe cough, usually moist, attended with severe pain in the chest; constriction; asthmatic affections; difficult breathing. *Post-mortem*: bronchial mucosa slightly reddened in spots; laryngeal and tracheal mucosa crowded with blood.

Bähr expresses himself as follows concerning *Mercur. sol.*: "Mercury is one of the remedies which experience has taught us to look upon as perfectly suitable in certain epidemics, so that some authors claim to have seen an actual cutting short of the disease by its means. The coryza demands especial consideration in these cases, as it serves as a valuable differential sign between *Mercur.* and *Arsen.* The latter has copious, watery secretion which rapidly corrodes the lips and nose, while the secretion that indicates *Mercur.* is mucous. Furthermore, this remedy is called for in case of severe pains in the extremities, angina, very sudden depression of muscular strength, profuse sour or musty perspirations affording no relief, and diarrhœa." *C. Müller* recommends it in the pneumonias which complicate influenza.

Kafka's indications for *Mercur. sol.* are a dry, rough, deep, hoarse cough especially troublesome during the night, preventing sleep; profuse perspirations giving no relief; painful diarrhoeas of a dysenteric character (when corrosive sublimate may be called for); hoarseness with fluent coryza.

Hughes says nothing of mercury in this affection.

Trinks says: *Mercur. sol.* was effective in the more marked degrees of swelling and inflammation of the mucous membrane of the trachea and bronchi; when the respiratory movements are increased; when whistling, hissing noises, a veritable concert of sounds, may be heard in the wind-pipe and its larger branches; when the patients are unable to lie down in consequence of great dyspnoea and are forced to sit upright day and night; the cough is commonly short, dry, sudden and rarely becomes loose; fever rises in the evening hours and lasts until midnight; the urine soon becomes turbid on standing and shows much mucus. We would only be repeating what has already been said were we to mention all the indications given by others.

Concerning *Mercur. viv.*, *Rummel* says: It was the specific remedy in influenza, which relieved the symptoms with surprising rapidity, but had to be repeated two or three times in the more severe cases (*Allgem. Hom. Zeit.* 13). *Gross* remarks: Where influenza was attended with an affection of the head, throat and chest, a dry cough preventing speech, growing looser at a later period, *Mercur. viv.* proved itself so specific that not only the whole disease was at an end in two or three days when two doses were given daily, but the first symptoms were nipped in the bud by it (*Archiv.* 13). The great similarity between these two preparations makes it difficult to differentiate the one from the other. According to the symptoms given above it will be seen that the laryngeal symptoms and the dyspnoea are more marked in *Mercur. viv.* than in *Mercur. sol.* The greater usefulness of one remedy or the other probably depends upon the existing *genus epidemicus*. Undoubtedly *Mercur. biniod.* would be preferable in very severe affections of the larynx. *Mercur. subl. corr.*, however, would find its place in grave nervous symptoms such as occur in certain epidemics,

as restlessness, sleeplessness or somnolence, anxiety, slight deliria, bronchitis, congestion of the lungs, croupous pneumonia, dysentery.

12. *Hay-fever.*

Although Arsen. is the chief remedy for symptoms of coryza, the great asthmatic disturbances and the burning pain in the eyes, epidemics and individual cases may occur, especially if the usually slight throat troubles assume a more severe form, in which *Mercur. sol.* or *Corr. subl.* will be indicated. Dart, who recommends the *Sticta pulmonaria*, mentions as *similia* Arsen. alb., Arsen. iodat., Arum triph. and Mercur. sol.

13. *Meningitis Cerebro-spinalis Epidemica.*

We must refer to the meningitis for the morbid anatomy of this disease as well as for the comparison of the individual symptoms. The violent headache, the spasmodic stiffness of the back of the neck, the opisthotonus or orthotonus, the intense lightning-like pains through the spine, which represent some of the most important symptoms of the disease, are not to be found under Mercurius, or at least not in the degree in which they occur in cerebro-spinal meningitis. On the other hand our remedy has the hyperæsthesia of the joints, the exanthemata, convulsions, paralysis, the catarrhal or purulent inflammation of the middle ear and the manifold affections of the eyes.

Inasmuch as the pathological changes caused by Mercur. and especially by Mercur. corr. consist in an exudation between the arachnoid and pia mater, these remedies are suitable as soon as the symptoms point to the existence of this exudation.

According to *Kafka* this is made certain by the following phenomena: At first somnolence and apathy, the patients toss about restlessly in their drowsiness, waking often with a loud scream, or with sudden starting up, loud deliria, rolling of the eyes, fixed staring of the eyes, after which they relapse again into their stupor. As yet the pupils are not dilated, but they already react much more sluggishly, or they assume a partially squinting position so as to overlook objects near at hand; the

hearing too, which at first is unusually keen, becomes dull. A certain degree of painfulness or stiffness of the muscles of the back of the neck is already present, as a general thing; but respiration is still accelerated for the most part, and the abdomen slightly drawn in.

14. *Intermittent Fever.*

Scopoli described a form of intermittent in the laborers in the quicksilver mines of Idria, occurring in the spring and especially in the autumn, chiefly in badly fed and dissipated subjects.

It generally appears as tertian, seldom as quartan, and is accompanied with bitter taste, badly smelling eructation, qualmishness and nausea. Towards the end of a paroxysm blisters filled with thin serum appear over the whole body; these blisters disappear after copious perspiration. We often find icterus and hydrops. As the concomitant symptoms point to mercury and as Idria is not a malarial district, we can only accept this intermittens as produced by mercury.

In none of the post-mortem examinations on record do we find any enlargement of the spleen; but *Halfort* says, that with some workmen in mercury the spleen has been found enlarged. *Schneider* speaks of sclerosis of the spleen. We mention the following symptoms pointing to the organ in question:

Mercur. sol.: A tensive and pinching pain in the left side, directly under the short ribs; a sensation which, although it is but little painful, still endangers life. With every inspiration a stitch as with a knife is felt under the short left ribs. In the left side under the last rib a pain as if it was swollen there. But it is hard to decide whether these sensations are due to the spleen or not. *Mercur. sol.* would therefore be our choice when heat alternates with chill; when perspiration is profuse sour or stinking, and does not relieve; when the thirst is great and the heat is accompanied by anxiety; also when the attacks are complicated with icterus or skin eruptions, or when the diarrhoea and affections of the mouth and pharynx are characteristic of *Mercur.* Sleeplessness and nocturnal attacks also speak for our remedy.

Mercur. viv. has all these symptoms in common with *Mercur. sol.* and deserves the preference in higher doses; in neglected cases, or such as have been maltreated with China and in which the splenic tumor is not extensive. Fall-fever especially suggests *Mercur. viv.*

Mercur. subl. corr. would only be called for in complications.

Kafka recommends mercury when the fever is accompanied by catarrhus gastro-duodenalis, which cases appear mostly with cholæmia.

IV. CHRONIC INFECTIOUS DISEASES.

1. SYPHILIS.

A. PRIMARY AFFECTIONS.

a. Chancre.

Halfort mentions that quicksilver produces ulceration on the genitals of workmen handling this metal, and *Heyfelder* observed mercurial ulcers on the labia minora of women occupied in looking-glass factories.

Although other authors deny this fact, which affords proof of a mercurial action accordant with the law of similars, we find so much similarity with true chancre (which may appear also on other parts of the body when not originating from coition, *e. g.*, on the lips by syphilization) that the locality presents no criterion. Let us first compare the mercurial ulcer with soft chancre. Both forms develop from pustules, which at a later period burst; while the soft chancre, with the exception of the gangrenous and phagedenic forms, remains superficial, the mercurial ulcers penetrate deeply. Both have a tendency to enlarge. The secretion of the mercurial ulcer is acrid and thin as in the phagedenic chancre, but with the simple form it is ichorous. The edges are cut off abruptly in the simple ulcer; with the phagedenic they are irregularly indented; with the mercurial they appear flat, irregular, indented. The base in the last form is cheesy, or like chewed blotting-paper; in the simple chancre it is lardaceous; in the phagedenic ulcer greyish-white, pseudo membranous; in the

gangrenous it shows mortification. The most important character of the indurated chancre, the hard edges are wanting in the mercurial ulcer. As the ulcers of mercurials are alike we do not enumerate the single symptoms. All homœopaths agree that mercury remains the chief remedy for the soft chancre. *Kafka* uses the *Mercur. sub.*, 2d dec. dil., because the *solub.* acts much more slowly, but only for the simple and the gangrenous chancre when the gangrenous parts have sloughed off and the ulcer has become clean. The indurated chancre he does not treat with mercurials, a practice in which we fully concur for the above mentioned reason, but give *Kali hydroj.*, and only when this fails *Mercur. biniodide*.

Bähr recommends in simple chancre *Mercur. sol.* in the 2d or 3d trit. internally, in the 2d externally; for the phagedenic *Mercur. corr.* and *Mercur. præcip. alb.* He agrees with *Kafka* regarding the gangrenous; for the indurated *Mercur. sol.*, or if combined with an indolent bubo, *Mercur. præc. rub.*; if with flat condylomata, *Mercur. corr.*

Veldham prefers *Mercur. sol.*, 1st or 2d dec. trit., to other preparations; the *Iodine compounds* in scrofulous individuals. Generally he recommends the quicksilver in young robust subjects with choleric temperament (in the opposite case *Acid nitr.*). These indications guide him in all forms of chancre, including the phagedenic.

Jahr finds in *Mercur. sol.*, 1st cent. trit., the chief remedy for the simple and the Hunterian chancre, if they come under treatment soon after infection has taken place. When this is not the case, he commences with the same remedy, but changes to *Mercur. præcip. rub.* if no improvement sets in during the first week. In very much neglected cases he prefers *Cinnabaris* to all other remedies. In the treatment of phagedenic chancres he highly recommends *Mercur. corr.* until the destruction of tissue is decidedly on the decrease under the influence of the remedy, which I then change to *Mercur. præc. rub.*

Hughes finds *Mercur. sol.* indicated for the soft as well as the hard chancre in general, but *Mercur. corr.* for the phagedenic form.

Schneider treated 325 cases of chancre with globules saturated

with the 4th to 6th dec. dil. of *Mercur. sol.* Inside of six to eight weeks full recovery took place, and only in four cases secondary symptoms followed.

Gerson prescribes *Mercur. sol.* only for simple soft chancre in non-dyscratic individuals; *Mercur. precip. rub.* when the chancre appears with high inflammation, elevated edges and is combined with buboes. He gives *Mercur. corr.* for phagedenic chancre, with tendency to gangrene; it quickly stops destruction and soothes; also for chancres in the urethra when the burning, scalding pain has reached its acme, the secretion becomes ichorous and the ulcer threatens perforation.

Hahnemann gave *Mercur. viv.** in one single dose; if there was the slightest complication with psora, he interposed two to three such doses inside of six to eight days.

Looking through our literature we find *Mercur. sol.* most commonly used for the soft chancre. But as this preparation is by no means sufficient in all cases, we fully agree with *Vehsemeier* and cite the dicta to which we refer: "If with the use of *solubilis* the chancre is not clean within ten to fourteen days, but the ulcer eats quickly into the surrounding tissue, *Mercur. corr.* has to be given in the 2 to 3 trit. (1, 2 to 3 grains morning and night) instead of the *solub.* But the *Mercur. corr.* must not be continued too long in those cases, however suitable for its use; but as soon as improvement shows that it has set in (by budding out of single granulations, easily bleeding, etc.), the remedy must be changed again to *solub.*, because otherwise a too quick and therefore pseudo improvement results. The ulcer in the latter case commences to clean from the sides instead of from the middle; the edges become elevated, grow rapidly, and in a few days under the action of *Mercur. corr.* the chancre cicatrizes. The cicatrix looks bluish-red and has a ball-shaped, knotty form." We know that *precip. rub.* produces ulcerations more quickly than other mercurial preparations (vide *Eiselt's* proving No. 6), by which *Juhr's* recommendation is fully justified, especially when buboes accompany the disease.

V. Meyer says about this preparation: The red precipitate is in its place when the ulceration extends further under the use

of the *solabilis*; when its shape becomes irregular, indented, the edges get puffed up and hard, and when the secretion becomes lardaceous.

From *Cinnabaris* as a combination of mercury with Sulphur we may soon expect a quick reaction in neglected chancre; also when the chancre appears in cachectic and especially scrofulous individuals; or when during the existence of a chancre every pimple or excoriation on the penis takes on the form of chancre, unless the most scrupulous cleanliness is kept up. For the phagedenic chancre we give the first rank to *Mercur. corr.*; for *ulcus elevatum Cinnabaris* is to be preferred.

As the quicksilver lacks the infiltration and the hardness which characterizes the hard chancre, it is not its similitum. We only find a similar eruption to the Hunterian chancre and also hard pustules with the Iodides of mercury. It is but through the combination with iodine that mercury becomes a simile of the hard chancre. We therefore prefer these combinations to all other preparations, even to Kafka's Kali hydrojod., because the mercury may act as a prophylactic against expected general syphilis.

Hartmann says in his Therapy: That he does not know a more suitable preparation than *Mercur. jod.*, 2 to 3, in indurated chancre. He prescribes it at first in short, afterwards in longer intervals, until the hardening has fully disappeared.

Also *V. Meyer* says that he could not do without *Mercur. binjod.* in indurated chancre.

Cinnabaris gives no proof (neither by Neidhard's provings nor Audrien's experiments) of producing indurated ulcers or indurations of the skin at all. Although *Gerson* recommends this remedy in primary chancres when the much elevated edges show a cartilaginous hardening, the pus being little and thin and the ulcer decidedly indolent.

Also *Cl. Müller* and *Lorbacher* recommended the *Cinnabar* against the indurated chancre. It seems as if mercury derives a greater power to affect indurations by a combination with Sulphur.

b. *Bubo.*

Passing by the recommendations of various authors regard-

ing this disease, which is produced by the sympathetic irritation of a soft chancre, or by induction of the syphilitic poison of a hard one, we only desire to say that in the first case we choose *Mercur. præc. rub.*, or *Cinnabar* or *Mercur. corr.*; and in the second case *Mercur. binjod.* or *Cinnabaris* (comp. scrofulosis). Which preparation deserves the preference the nature of the ulceration will decide.

B. CONSTITUTIONAL SYPHILIS.

For undoubted *syphilitic eruptive-fever* after the arterial system has been quieted by Aconite, we certainly choose mercury. Though preferring the *Mercur. corr.* generally, we prescribe *solubilis* for the complication with swelling of the joints. The syphilitic skin eruptions find their chief remedies in *Mercur. viv.*, *sol.*, *binjod.*, *subl.*, *præc. rub.*, and *Cinnab.* See chapter on skin diseases. It remains to consider pointed and broad condylomata, as well as syphilitic ulcerations.

In so far as quicksilver does not produce morbid growths on the skin, but destruction of its tissues, the mercurial preparations are inapplicable to *pointed condylomata*. But no preparation produces changes in the skin so similar to *broad condylomata*, taking also their locality into account (*e. g.*, margin of mouth, anus) as *Mercur. cyanide*, which *Simon* recommends against that affection; while *Kafka* prescribes *Mercur. corr.*, or if rhagades be present, *Mercur. præc. rub.* Other authors stick to *Cinnabar*. *Bähr* speaks of *Mercur. corr.*, *Yeldham* of *Mercur. sol.* Against *syphilitic ulcerations of the skin*, *Mercur. viv.* is the chief remedy, because it most frequently produces similar ulcers as in syphilis, only after the poison has acted upon the organism for a length of time. But if owing to other symptoms other mercurial preparations are indicated, these will also act favorably on the disease, since all mercurials produce such lesions.

As the *corrosions* of all mercurials acts most powerfully on the mucous membrane, we agree with *Kafka* and *Yeldham* who recommend it in ulcerations of the mucous membranes of the soft palate, the uvula and the pharynx.

Gerson gives *red precipitates* in syphilitic knotty deposits in

the tongue, with intense, mostly burning, pains; also in affections of the *cavities of mouth and pharynx*.

If the *mucous membrane of the larynx* is the seat of the ulceration, we prefer *Mercur. binjod.*, which is also our first choice in *tuberculous knots upon the mucous membrane*. Gerson recommends *Cinnabaris* against *syphilitic ulcers of the larynx*, when they are torpid and symptoms of tuberculosis make their appearance.

V. INFECTIONS BY ANIMAL POISONS.

1. GLANDERS.

Although the characteristic plugs are missing in mercurial symptoms (*Mercur. binjod.*, perhaps, excepted) we find among them others presenting points similar to glanders, viz.: small pustules; abscesses; phlegmon; ozæna; ulcerations in the buccal mucous membrane; bleeding of the gums; difficulty in swallowing; swelling of the lymphatic glands; painful swellings of the joints; colliquative perspiration, etc., so that in light chronic cases the choice may well fall on mercury. We find the following indications for this remedy in our literature: The intense rheumatic-gouty pains, which are pathogenetic to *Mercur. corr.*, correspond to the similar affection of glanders; furthermore gangrenous angina, stomacace and ozæna. Amongst skin symptoms: Petechiæ, furuncles, blisters; in the alimentary canal, bloody fetid involuntary stools, with tenesmus; although here we may prefer *Arsen.*, *Lachesis* and the Acids.

Hughes recommends mercury when the lymphatic glands are much swollen, in light cases.

Kafka advises the use of *Mercur. sol.* in acute and chronic glanders when the lymphatic glands are much swollen, with cord-like swellings of the lymphatics.

DISEASES OF THE CEREBRUM AND ITS MEMBRANES.

1. INFLAMMATION OF THE DURA MATER.

Pathological anatomy affords us useful instruction in many of the results of autopsies. Under the action of *Mercur. viv.*

we have exudative inflammation of the membranes; the soft as well as the hard are obliterated and thickened anteriorly (No. 31); with *Mercur. corr.* (No. 38) after sawing through the cranial bones and cutting the very strong and extensive adhesions of the dura mater, the calvarium had to be lifted with great care.

Among the ethiological points testifying in favor of mercury we have to note: Otorrhœa and periostitis of the extra-cranial surface of the petrous portion of the temporal bone, arising from caries. We find with *Mercur. vin.*: febrile signs; vomiting; vertigo; buzzing in the ear; twitchings; delirium; paralysis. As the diagnosis is difficult many a cure of meningitis may more truly perhaps be classed under pachy-meningitis, for we do not find a single case of the latter in our literature.

INFLAMMATION OF THE PIA MATER; MENINGITIS.

The post-mortem examinations, after poisoning with *Mercur. corr.*, show the following phenomena pointing to meningitis: Arachnoidea (No. 27) inflamed, especially on the left side; in the cavities four ounces of bloody serum. (No. 28) In the cavities of the brain, in the cellular tissue and under the arachnoidea, much serum. (No. 38) All blood-vessels of the dura and pia mater fully injected; one lateral and one posterior sinus injected with a large quantity of arterial blood; the plexus choroideus mostly filled with blood.

Although these facts correspond more with meningitis basilaris than that of the convexities, we are still justified in the use of mercury, especially the *corrosivus*, by the experience of its power of absorbing suppurative exudations and of dissipating fibrinous ones, as well as by its symptomatology. With *Mercur. sol.* and *corr.* we find the severe headaches; restlessness; sleeplessness; delirium; convulsions; sopor; grinding of the teeth (*Mercur. sol.*, Symptom No. 28), insensibility of pupils, paralysis.

In the stage of exudation we think of mercury when those remedies have already been used which correspond to the first stage, and there are no particular indications for other remedies.

Hughes calls *Mercur. corr.* and *Kali jod.* the most powerful

remedies for chronic meningitis of a syphilitic origin, which disease generally comes under our treatment as syphilitic headache.

Those tubercular granulations of the pia mater present in most cases of meningitis basilaris, we do not find in any preparation of mercury; not even in the case No. 37 of tuberculosis pulmonum under the action of *Mercur. viv.* Whether the meningeal exudation, mentioned in the beginning of this chapter under post-mortem examinations, has been found on the convexities or base of the brain, or on both, is not on record; but we find exudation in the ventricles, which is due only to basilar meningitis. For this *Mercurius* is recommended by *Kafka* to promote absorption when convulsions and sopor set in, in consequence of the pressure caused by exudations at the base of the brain, or by the serous exudation in the ventricles.

Bähr only mentions the name of mercury after discussing the chief remedies.

Jahr says: Although mercury may be very useful in some cases of acute inflammation of the brain in children, I should not advise any practitioner to lose even a moment with it unless *Bellad.*, *Bryon.* and especially *Sulphur* should have proved absolutely useless.

Altschul cured a case of meningitis tuberculosa with *Nux vom.* alternately with *Mercur. corr.*, basing the interposition of the latter remedy on the following: *Corrosivus* acts especially upon the brain (and heart); besides which it is capable of producing consumption and tuberculosis of the lungs; in large doses we *always* saw in toxic cases suppression of urine; sleepiness; stupor, even coma and contractions of the lower extremities, which symptoms we always find again in basilar meningitis tuberculosa.

Fever and headache symptoms have to be looked for in their respective chapters. The symptoms already enumerated have to be considered in most cerebral diseases.

Mercur. corr.: Pupils contracted (as in the first stage of basilar meningitis); face very full and red; the eyes shining and moving uneasily; pupils dilated; pupils hardly affected by the brightest light; pupils insensible; contraction of the cor-

rugator supercili with partial strabismus. Double vision; blindness; rolling of the eyes; vomiting often and quickly (vide gastritis); stool harder, knottier, less; no passage of urine (vide nephritis); respiration slow, interrupted, sometimes deeply sighing; breathing very slow; contractions of the extremities (Quarin); lower half of body as if dead, its sensibility is gone; sensibility of lower extremities gone; the skin was pressed strongly without her feeling it. General cramps and convulsions; twitchings; convulsive movements of the muscles of the face, arms and legs; continual spasms in all extremities; two to three hours after taking the corrosive mercury, spasms appeared, at first in the toes and feet, then in hands and fingers, and afterwards in the arms and legs. Perfect paralysis of the upper and lower extremities; deep somnolence; he starts violently on going to sleep, with a concussion of the whole body. When she wants to go to sleep she starts suddenly. Starting repeatedly during sleep; sleep disturbed by frightful dreams.

Timid fancies; great anxiety and uneasiness; at night greatest restlessness; occasional delirium; slight delirium; almost unconsciousness; stupor; coma.

In spite of these numerous corresponding symptoms many are wanting of great importance, which we find in other remedies, *e. g.*, the vomiting on moving; the slow pulse in the second stage (only in No. 30 do we find the pulse as low as 40), the contracted abdomen, the constipation; the grinding of the teeth during sleep; the contraction of the muscles of the neck, with boring of the head into the pillow; the *crie hydrocephalique*; the frequent repetition of the same word or sentence.

With *Cinnabaris* we find: Heaviness in the head; sleepy in daytime, restless at night; indisposition to mental work (after the 6th dil.); nausea at 9 p.m., afterwards bilious vomiting, with much retching and swollen face. During the whole time of the proving he was inclined to constipation; constipation, a single stool a week; taking the 3d dil. every day he is constipated several days afterwards. The muscles of the neck seem contracted; sleepiness (with several provers); restlessness and tossing during the whole night, with anxious dreams. As

Neidhard's provings were made only with dilutions (3, 6, 30) it is not surprising that we find no convulsions, paralysis, sopor, etc. According to the chemical composition of the Hg. with S. we might theoretically infer the action of Cinnabar in exudative diseases of the brain.

Mercur. viv.: Nightly delirium; delirium; eclamptic attacks; sometimes consciousness; unconsciousness; delirium from time to time; stupefaction; continuous comatose condition; uninterrupted quiet delirium (nightly hallucinations and attempts to escape; left the bed and room, but returned immediately on special request). Vomiting from rising quickly and bending forward, with vertigo (No. 32); screaming with convulsive attacks without complete loss of consciousness; sensibility of the skin especially diminished; partial paralysis; paralysis of the right arm; paralysis of the extremities with exception of the left arm; paralysis of the extremities; urine voided in bed. Swelling of the glands of the throat and neck; constipation for several days; in many cases somnolence; restless sleepless nights; heavy dreams.

Mercur. sol.: Is senseless and speechless; she appeared to be asleep, but was pulseless, the body being normally warm, looking like a corpse; he sees pointed things as if they had double points; the eyes cannot bear the glare of fire and daylight; she grinds her teeth at night while sleeping; swelling of the glands in throat (and parotid). Nausea accompanied by vertigo with darkness of sight and flushing heat; constipation for several days; scanty fiery red urine; stiffness of the neck (of, apparently, a rheumatic nature); itching of all the muscles of the right arm; the right arm is involuntarily shaken and thrown about all night; spasmodic contraction of the fingers and hand, which are bent inwards; visible twitching in the tendons of the fingers and toes and in the tendo Achilles; often a numb lameness of the thighs; involuntary twitching in the legs; spasmodic drawing up of the legs; they remained drawn up all night, although he wished to stretch them; spasmodic contraction of the toes at night; twitchings; as soon as she sits down all her limbs go to sleep, so that she hardly feels anything about herself. Much inclination to sleep; sleepiness, inter-

rupted by frightful starts, palpitation of the heart and horrors of imagination; much sleepiness through the day; too much sleep by day and night; she often starts in her sleep throwing her arms up high. Much delirium during sleep; cannot fall asleep in the evening on account of frightful visions; frightful dreams at night; frightful dreams with starts; intense restlessness all through the night; great timidity at night, causing him to start.

Merc. præc. rub. Stupor as from narcosis; violent spasms; very painful cramps in the lower extremities; cramps in the lower extremities. After recovery, a peculiar predisposition to an involuntary spasmodic contraction of the lower extremities; abdomen tensely contracted; pupils somewhat dilated.

The succession in which the different *Mercur.* preparations might be arranged according to their symptoms in meningitis is: *Mercur. corr.*, *Mercur. viv.*, *Cinnab.*, *Mercur. præc. rub.*, *Mercur. sol.*

3. HYDROCEPHALUS ACUTUS.

In a post-mortem examination (No. 27) after poisoning with corrosive sublimate, we find: In the ventricles four ounces of bloody serum; in another case (No. 28), much serum in the ventricles and the cellular tissue below the arachnoid.

As the symptoms of this disease are very similar to those of meningitis, we refer to the latter, merely desiring to add that *Katka* recommends *Merc. sol.* for that form of hydrocephalus only, which is based on scorbutus; while *Guernsey* gives the following symptoms for its use: Scorbutic gums; salivation; glandular swellings; slimy or clay-colored stools; and *Hertmann* speaks in the following manner in his "Diseases of Children:" "It is not only on account of the helminthiasis for which it (*Mercur.*) is so well indicated that I mention it here, but for its peculiar power to promote the resorption of exudations. Nevertheless, I do not consider it so excellent in this disease that I should like to say any more in its praise."

According to *Gerhardt*, *Mercur.* may be used: For pale face with sunken features; cool perspiration in the face and on the nose; coated tongue; sensitiveness to pressure in the region of

the liver and stomach ; turbid urine ; constipation (*Mercur. viv.*) or severe diarrhœa ; or *complete debility or exhaustion*, with *great emaciation*. *Hirsch* recommends the *Mercur. viv.* in a decoction. He boils mercury in water for half-an-hour and then gives this water, after cooling, in spoonful doses.

Because of the more energetic action of *Mercur. corr.*, we should prefer it to solub. in cases presenting the same symptoms and pathological changes.

4. HYDROCEPHALUS CHRONICUS.

Our autopsies do not give any reason for the choice of mercury (*Mercur. viv.*) in this disease ; for only in *Mercur. viv.* (No. 37) do we find : Ventricles enlarged (perhaps in consequence of atrophy of brain substance). In the records of our literature, we only find it as an intercurrent remedy, although it acted well in cases published by *Schwarze*. *Calc. carb.*, *Sulph.*, *Kali hydroj.* and *Arsenic* remain the chief remedies. *Gerhardt* speaks in favor of the *Mercur.* when there is present a very extensive collection of water and enlargement of the cranium, combined with *profuse perspiration, which does not relieve*.

5. HYPERÆMIA OF THE BRAIN.

Though in post-mortem examinations we may find hyperæmia of the brain after acute poisoning with all mercurial preparations, besides several phenomena *intra vitam*, which seem to indicate the remedy, such as vertigo ; headache ; oversensitiveness of the senses ; sudden starting ; and even convulsions, we shall rarely be led to the choice of mercury by the concomitant symptoms.

Jahr gives the following indications for *Mercury* : Fulness in the head, as if the forehead would burst, or as if the head were pressed by a band around it ; or with aggravation at night, with burning, tearing, boring or lancinating pains, combined with easily excited, frequent and profuse perspiration. Compare the symptoms in headache and vertigo. Although the record of autopsies are not given minutely enough, we may deduce from some of them, that the hyperæmia is venous. So

it says in the "Poisonings of Animals," by Overbeck: Cerebral vessels filled abundantly with dark blood.

In *Merc. viv.* (No. 7, 8, 9) all the blood-vessels are filled with dark, black, fluid blood; the cerebrum and cerebellum in all their vessels much injected with dark fluid blood; so as to impart to them a dark, red color. In *Præcip. rub.* (No. 5) we find the meninges and the choroid plexus overloaded with venous blood. In other cases the condition of the blood is not stated.

If we may be allowed to draw a conclusion from the few cases of poisoning examined, the *Præcip. rub.* is the preparation which most generally produces hyperæmia of the brain. What *Fommerais* (Hirschel's Zeitschr., vol. 5) says about the prophylactic action of mercury in apoplexy, may also refer to hyperæmia. He recommends it in lymphatic and leucophlegmatic constitutions, with morbid nutrition; bodily and mental weakness; great inclination to sweat and catch cold; predisposition to melancholy; with stinging, boring headache, one-sided tearing; stinging in the ears; intense aggravation at night, and in the warmth of the bed; night-sweats giving no relief; soreness; fatigue and quick prostration; oversensitiveness of all the organs.

6. ANÆMIA OF THE BRAIN.

In one of the autopsies (28) we find anæmia of the brain.

We shall show hereafter that, in cases of chronic poisoning, the vertigo is based on anæmia. As the effects are only developed slowly in chronic poisoning, we must use *Mercur. viv.* in high dilutions for anæmia of the brain of slow development. In our histories of diseases, we find most of the symptoms due to this form, viz.: Attacks of vertigo, sometimes with loss of consciousness and falling down. (As some patients only remained in bed on account of the vertigo; and Kussmaul speaks in one case of vertigo also while in bed, we may be justified in the inference that it is ameliorated by lying down.) During the attack very pale; sometimes nausea and vertigo preceded the attack; headache in the forehead and neck; flickering and

fog before the eyes; buzzing in the ears; sleepiness, excitement, delirium.

Mercur. viv. is indicated in those cases of anæmia of the brain which depend on a diminution of the quantity of the blood, and the red blood corpuscles; an atrophy of the brain (Autopsy 37), especially in the senile age or on diminution of the cavity of the cranium by exudations; extravasations or syphilitic tumors of the brain and its membranes (compare the respective chapters). In the latter case, we should give the preference to *Mercur. binjod.* Aggravations at night or in the evening are a valuable indication for the choice of our remedy.

7. VERTIGO.

According to *Kussmaul*, vertigo is extremely frequent and often becomes intense. It comes unexpectedly and suddenly, or with prodromes: buzzing in the ears; sparks before the eyes, and vision of colors; obscuration of sight; and nausea even to vomiting, introduce and accompany it. It may induce the patient to remain in bed; as otherwise, he may fall and injure himself. But even in bed the vertigo does not cease; and it is more frequent in the evening. The sufferers describe their condition as like that of a drunken person who is not sure of his gait. Sometimes the vertigo is accompanied with entire unconsciousness; the patient unexpectedly falls down senseless, and remains so for a short time.

Jahr recommends *mercury* for the following symptoms: Vertigo present when raising the head or getting up; or perhaps in the evening, with nausea, obscuration of sight, heat, anguish and desire to lie down; also when worms are present.

Kafka uses the *Iodides of Mercury*, or else *Mercur. corr.*, for dizziness in consequence of syphilitic tumors.

In the cases recorded in our literature, which were cured by mercury, we find amongst the causes, repelled eruption and retarded menstruation, both, perhaps, due to anæmia. Vertigo—compelling the patient to lie down, with a rocking sensation, even while recumbent; the patient feels as if stifled for want of room while lying down—*Mercur.* 12 and 14 were given.

We find many analogies for the nervous vertigo in the mercurial erethism, *e. g.*, the head is generally dull, sometimes the dulness is aggravated to a headache, often severe, sometimes intolerable.

Vertigo and buzzing in the ears are often present. A very peculiar though frequent phenomenon is a certain psychical erethism; good workers, not naturally bashful, generally become painfully so when looked at, and are frequently unable to continue their work while under the eyes of a strange observer. The disposition becomes irritable; the patient easily gets angry, and rapidly passes from fury to faint-heartedness. The sleep is often disturbed; there are frequent starts with much dreaming, and restless and unrefreshing sleep—(Kussmaul).

Falk mentions the following symptoms in mercurial erethism: "Feeling of light fluttering in the præcordial region; anguish originating in the præcordia; sighing and yawning; palpitation of the heart; irregular heart's action, especially weak during sleep; faintness; pale, collapsed face; chill through the whole body."

Mercur. solub.—Vertigo in the room, so that she had to take hold of something to prevent falling down; even while sitting she feels dizzy; vertigo more while sitting than standing; dimness and blackness before the eyes, especially in the evening. Vertigo while sitting at the desk, as if he was intoxicated; he gets up and walks around the room staggering; then he is taken with an anxious heat and nausea, which is not preceded by vomiting; also headache (3 days in succession at noon and afternoon). When, after sitting bent, he rises, he feels vertigo at the first moment; when resting upon his back, he becomes dizzy and qualmish; getting better when lying on the side. Vertigo; cold hands with febrile chills, then dulness of the head; intense vertigo while standing, on bending the head forward; vertigo compelling him to lie down; when walking about everything seems to turn around with him; vertigo while walking in the open air, with nausea, and a sensation as if a worm were rising in the chest to the throat; vertigo and staggering on entering a room from the open air;

vertigo and staggering while walking in the open air, but, in the room, only heaviness in the head; vertigo such that, in reclining, he feels like swinging from head to foot; she appears as if drunk after eating; the face becomes hot and red and swells.

Mercur. corr.—Vertigo after stooping, getting warm, after work; vertigo with coldness and cold perspiration; vertigo and general weakness, especially in the joints; turning dizziness with loss of hearing from one-half to one hour, mostly at evening towards 8 o'clock, and on lying down; seldom at night or through the day, with tearing in the occiput; faintness.

Mercur. cyanid.—During headache, vertigo and intense nose-bleeding; headache; vertigo on sitting up, buzzing in the ears. For the hyperæmic vertigo coming on suddenly, or after great loss of vital fluids, we have other means which may be preferred to mercury.

8. HEADACHE.

Under *Mercur. viv.* we find, in our history of diseases, severe headache; but mostly without any further notations. In one case (No. 32) we find boring pain in the front part of the head; in another one (No. 47), headache on getting up every morning.

Kussmaul says, in his resumé on the Constitutional Mercurialism: Severe headache day and night, mostly drawing and tearing. Sometimes it is more in the forehead; sometimes in the occiput; sometimes the scalp is painful to the pressure.

Mercur. solub.—Headache, like dizziness and fulness in the brain; dull in the head early on rising. In the room: heaviness and dulness in the head, especially while sitting or lying; the head is heavy, with a dull pain; soon after rising, confusion and dulness in the head, which passed off in the open air; heat and pain in the whole head; in the evening till going to bed, an uneasy and painful sensation in the head, aggravated by loud talking; ameliorated while sitting down and supporting the head; burning in head; pain in the head as of severe distention, which is felt all around, directly above the eyes and

ears, and in a space hardly three fingers wide; pressing headache as if the head were tightly bound by a broad ring, or bandage. In the evening: headache as if the brain was drawn tightly together by a bandage; headache, as if directly under the skull, which seems too heavy and too tight; headache pressing outwardly; headache, as if pressing out of the occiput; headache, as if the brain were pressed asunder; fulness in the brain, as if the head must burst; pressing headache in occiput; headache, pressing out of the forehead, with pain in upper margin of orbits, especially when touched. Severe headache, as if the head would fall apart above, and pressing as if everything must come down through the nose. In the evening: headache in the front and upper part of the head, a painful dulness with peevishness; pressing-out pain in the forehead, mostly while recumbent, ameliorated by pressing with the palm of the hand; waving motion and beating all over the forehead; a strong tearing pain passing from the occiput to the forehead, where it becomes pressing; stinging in the forehead during a walk in open air. Tearing in the cranium, especially in the os frontis; tearing headache in forehead extending to vertex; tearing headache in lower part of the occiput; headache like a tearing, slow, lancinating pain, as if sore; stitches through the whole head; stinging pain in the forehead; interrupted boring stitches in the left frontal eminence, very painful; with chills all over the body; cold hands, hot cheeks, and warm forehead; without thirst (the last symptom points to neuralgia of left frontal nerve); tearing digging in front part of head. On stooping: Digging headache in the forehead, with heaviness; pain on upper part of occiput; a boring pain in occiput; contracting headache; the head feels as if screwed together; sometimes in the fore part, or back part, or side of head, with watering eyes; tossing concussions in the brain, especially on moving and stooping; pressing pain in left temple and on right frontal eminence; severe drawing in right temple; twitching, drawing, and pinching in right temple and occiput down the neck; tearing pain in outer part of head; the whole outer head is painful to touch; tearing pain externally on the forehead in all positions; burning outside on left temple; burning in skin of left part of forehead.

Mercur. corr..—Sensation of heaviness in head; severe febrile headache; pain, like drawing, in periosteum of cranial bones; dulness of the whole head, excepting the temples; dulness of head, especially over eyes; head dull, dizzy in sudden attacks; nightly headache of a boring character; dulness of forehead, with waving pain in both hemispheres; stinging pain in forehead; disagreeable pressing in forehead, especially in the right frontal eminence; dulness of upper part of forehead; stinging frontal pain for an hour; dull pain in right frontal eminence; stinging in left parietal bone; tearing, more rarely stinging, in left parietal bone; stinging headache, combined with pressure, above the left eye, aggravated by bending forward (neuralgic?). The headache affects the temple and changes above the left eye to pressure; pain especially around the temple; tearing in left zygoma; fulness in occiput. Turning vertigo with loss of hearing for one-half to one hour, mostly in the evenings towards 8 o'clock, on lying down, seldom at night and through the day, with tearing in occiput.

Cinnabaris.—Feeling of heaviness in the head as after long continued mental labor; a dull heaviness from the forehead towards occiput, mostly over the right eye and temple, with heat; from time to time, shooting pain through the head, from without inward. In the evening, from time to time, shooting pain in the upper part of left temple and squamous suture; dulness of whole head, especially of forehead; unusual sleepiness and heaviness over eyes. In the forenoon, heaviness in head; head full, heavy, with intense pulsation of temporal arteries, great sleepiness in daytime; symptoms of catching cold in head(?); fulness in head. In the evening, fulness and pressure in forehead; severe headache, eased by external pressure, pain almost unbearable; headache is so severe that he could hardly lift the head from the pillow, lasting from 12.30 to 6 o'clock, P.M.; headache is much worse after sleep; dull sensation in head, and pressing pain, ameliorated in open air and disappearing after nose-bleeding. Pressing headache; from time to time a boring and gnawing on small places over the left upper part of head; severe constant pain in forehead, most in the right orbital region; severe pain in the right supraorbital region,

back and downwards towards the ear, radiating to the side of the neck; forehead very hot; the pain is worse in a room, and on moving the eyes and the occipito-frontalis muscle. After eleven hours this increases to a heavy stupefying pain, aggravated by thinking, reading, and pressure; better in morning, but returning in the evening; the same headache also returns in the morning at 11 o'clock, with inclination to sleep while reading, although he took much pains to remain awake; better in the open air, and after eating and sleeping; tired feeling in head as after continual mental labor; a dull, pressing pain in forehead antero-posteriorly, especially over the right eye and temple; with heat of the head, and from time to time, shooting pains from without inward. Dull pain in the cold forehead, ameliorated by applying a warm hand; at a place above and between the superciliary ridges within the space of a quarter dollar, sensation as if pressed with a cold metal; while the corresponding place inside of cranium seemed to be warmer than usual. Almost every morning, after getting up, a dull pain in forehead and vertex, worse when lying on left side and on the back, going off after turning over on right side and pressing the head into the pillow; changing back to former positions brings back the pain, which disappears again under previous conditions, and after rising and washing (with two provers). Dull pain in forehead, above eyes, in the afternoon, which gets worse in the evening and by motion; severe pain in forehead, remaining all night; dull pain in forehead all day; a pressing pain in forehead, spreading upwards, seems to be located between the skin and muscle; aggravated while lying and pressing the head to the pillow. At noon, beating in forehead; stinging pain in forehead all night; pain from right lachrymal canal around the eye to the temple; drawing pain from right inner canthus over the superior maxillary to the ear; sensation of fulness and weight through the temples, with beating above the right temple, worse on motion; pains passing through the sides of head and temples, the pain is in the neighborhood of the external brim of the right orbit, and more frequent on the right than on the left side; constant pain in right side of head, from temples to occiput. Pressing

pain in right temple ; pain in left side of head, in temples and supra-orbital regions. In the evening, from time to time, shooting pain in the upper part of left temple ; dulness of whole head, especially in forehead just above the eyes ; beating and burning in both temples. An hour after taking the drug in the morning, severe pressing pain in occiput and in left side of head for two hours ; in the afternoon she had to lie down and sleep, after which the pains disappeared ; shooting pains in left side of head from occiput to forehead ; turning the head, a pain along the right sterno-cleido-mastoid ; pain in neck, extending to occiput on bending the head backwards ; the muscles of the neck feel as if they were contracted. Before retiring, a drawing pain in head from vertex to occiput, inclining to the right, the pain is deep, as in the centre of the head. After rising, fulness and pressure in occiput and neck, continuing until noon with great severity ; sometimes pain in left side of occiput ; painfulness from right ear towards the middle of posterior cervical region, as if the glands were swollen.

With *Mercur. dulc.*, we find headache only in case No. 8.

The *metallic mercury* will only be valuable in chronic brain-affections, in which headache prevails as a symptom. Also in rheumatic headache, especially in the periosteum, we have to think of it ; in the latter case, it deserves the preference to *Mercur. solub.*

Mercur. solub. corresponds chiefly to rheumatic headache, also when it has its seat in the pericranium, or the bones of the cranium and face, or when it appears as a rheumatic neuralgia. According to *Kafka*, *Mercur. solub.* is indicated in neuralgia of the head, caused by a cold ; when the patients experience tearing or drawing in one-half of the head, and the pains are combined with stinging in the ears, tearing in the teeth or drawing in the neck on the affected side ; when the patient at first feels as if the head were full and would burst ; when the pains appear with chills, cold hands, hot cheeks, without heat in the head, and thirstlessness, with highly increased but not ameliorating perspiration ; the attacks come at night in bed, aggravated by motion, touch, or talking of surrounding persons ; ameliorated by sitting, lying, and external warmth. To avoid repetitions, we omit the recommendations of others.

When mercury is indicated at all, and the *solub.* fails, the *corr.* ought to be tried before resorting to other means; because it acts much more powerfully than the former. *Cinnabaris* corresponds more to the congestive state than all other mercurial preparations, the sleepiness in daytime predominates; the Cinnab. headache differs from that of *Mercur. solub.* by its frequent appearance on the right side, which is opposite in the latter, also by going from without inward.

Neidhard remarks in his *Cinnabar* proving that recovery set in under the use of *Cinnabar* 12th and 30th in ten cases which exhibited the characteristic pain from occiput to forehead.

9. APOPLEXY.

Several cases of *Apoplexia mercurialis* are on record, so that *Willis* advised to abstain from the use of mercurials in all persons suffering from brain disease and predisposed to spasms. *Hoffmann* (*De metallurgia morbifera*) assures us that all looking-glass workers are inclined to apoplexy.

In the autopsy: *Mercur. viv.*, No. 47, we find: A bloody, thick fluid, one-third inch thick, with white streaks of coagulated lymph in both hemispheres; especially in the left one posteriorly. It extended along the pia mater, also around the tentorium cerebelli, and covered the most part of the surface of the cerebrum.

If hemiplegia had not preceded death, the post-mortem might have left it in doubt whether this case was not one of hæmatoma of the dura mater.

In No. 37 we find numerous capillary hemorrhages in the atrophied brain.

This shows that *Mercur. viv.*, in high potencies, suits those cases of apoplexy in general which depend either on a scorbutic condition of the blood, or on atrophy of the brain; although it will act in the latter case more as a prophylactic than as a curative.

In the three cases of *acute* poisoning with *Mercur. viv.*, Nos. 7, 8, 9, we find that on slicing the brain, many bloody points appeared scattered in the substance of cerebrum and cerebellum; some fluid blood at the base of the brain.

We shall rarely find the similitum in mercury during the attack. *Baehr* recommends it in the stage of reaction in those cases where iodine is only indicated, viz : where the reaction is so severe that it may be looked upon as depending on the inflammation of the tissues surrounding the extravasation (vide, inflammation of the brain). *Kafka* prescribes *Mercur.* (or iodine) for the remaining paralysis, to hasten the absorption of the extravasation, which is the cause of the paralysis in plethoric or strong individuals. If an inarticulate, stammering speech remains, we should also use mercury, based upon the so-called *Psellismus mercurialis*.

10. ATROPHY OF THE BRAIN.

The following results found in post-mortem examinations in *Mercur. viv.* point to atrophy : Brain very firm (Nos. 28, 55, and others); white substance is bluish-white, shining faintly (No. 28); convolutions much atrophied; ventricles wide; capillary hemorrhages (No. 37); cerebrum and cerebellum externally and internally harder and unusually firm; less white, but tainted yellowish (No. 44).

Overbeck, in his experiments with animals, found the brain, in two instances, more firm, compact, and somewhat œdematous.

Also in two dissections after poisoning with *Mercur. corr.*, we find the brain substance firmer. But in the one case (No. 34), the subject is an epileptic; and in the other (No. 27), it is said to be a little firmer than normal. It would not be easy to explain how atrophy could have developed in these two cases, which terminated in death soon after taking the poison.

11. PARTIAL SCLEROSIS OF THE BRAIN AND SPINAL CORD.

Here we follow *Charcot* (Clinical Lectures on Diseases of the Nervous System), *Buchwald*, *Leube*, *Schule*, etc. (German Archiv for Clinical Medicine, vols. 8, 10). In the first period, we find appearing, either suddenly or gradually, a sensation of heaviness, weakness, crawling in the lower extremities; in some cases, complaints of shooting pains here and there through a

whole extremity; severe lancements in arms and legs, and sometimes rheumatic drawing and tearing. The legs give out after short exertion; afterwards the upper extremities are affected in like manner. These phenomena gradually pass into one-sided or complete paralysis. Before, with, or after these, cerebral symptoms set in: Vertigo, headache, disturbance in the functions of the optic nerve, viz.: Diplopia; strabismus; nystagmus; difficulty of speech; slow, heavy, monotonous, scant speech; disturbances in the glosso-pharyngeus are more rare. The slow, heavy speech is caused by a certain slowness and clumsiness in exercising the finer movements of the tongue; the interrupted speech is caused by the impossibility of retaining the vocal cords in strong tension for a sufficiently long time. After a longer or shorter time, a symptom appears which is, according to French authors, the most important and the most valuable of all for a differential diagnosis, viz.: A trembling in the muscles, first of the lower extremities, afterwards the upper ones; of the head, tongue, and bulbus; but only during voluntary motions and not during perfect rest. The sensibility is, in most cases, intact; but sometimes reduced to analgesia. The electro-muscular sensibility is only slightly reduced; the nutrition of muscles does not suffer. Intelligence and memory are not affected. Remissions and intermissions are frequent.

In the second period, which develops sometimes very slowly, sometimes rapidly, all symptoms become worse. Remissions and intermissions are rarely observed; but sudden aggravations are also rare. The patients cannot walk without support; the times of the day have no influence; in the third case (Leube's Archiv for Clinical Medicine of B.) the patient observed that he walked with greater difficulty at night than in the daytime, at the beginning of the disease; the gait is like that of a drunken person, and never resembles that of locomotor ataxia.

To the paralytic symptoms are added contractions in the extremities; tonic and clonic spasms (Charcot's Spinal Epilepsy), occurring spontaneously or during intended movements. Pain is seldom present. The disposition is change-

able; the mental functions diminished, and the difficulties of speech are more striking, as the patient speaks quite unintelligibly.

In the third period, the picture becomes even more sorrowful. The patients are condemned to all the irksome consequences of keeping perfectly still; they have to be fed, as they strike their faces when trying to feed themselves. In some cases, the tremor is exceedingly severe when the patient pays great attention to himself. The contraction either remains in the extremity or complete stiffness or paralysis sets in in the extended position, with the exception of an occasional flexure of the fingers. As rare occurrences during the disease, Charcot mentions apoplectiform, and epileptiform attacks; hemorrhages in the brain or softening of this organ. Disturbances in nutrition and digestion commence; the domain of the glosso-pharyngeus is sometimes engaged in the process; paralysis of the sphincters of bladder and rectum ensues; the psychological functions are more and more impaired; and at last we encounter apathy, imbecility and mental stupor.

If the patient does not die from intercurring diseases, the exitus lethalis will be caused by decubitus, emaciation, or affections of the organs of digestion and respiration (asthmatic attacks); perhaps sequelæ of nervous disturbances. The most frequently intercurring diseases are pneumonia, cheesy tuberculosis, and dysentery.

This picture we shall compare with the tremor mercurialis, as Dieterich, Falk and Kussmaul describe it, and as it also corresponds to those diseases given under *Mercur. viv.*, B. It is by no means uncommon for the tremor mercur. to set in with a series of mental symptoms. The patients complain of vertigo, which may become so severe that they fear to fall if they do not sit or lie down, or take hold of some firm object. This vertigo is not caused by an imaginary failing of support by the lower extremities, but by cerebral disturbances, the reality of which can be proved by other symptoms. There is often present at the same time headache, buzzing in the ears; restless sleep, frightful dreams and sleeplessness; the vertigo appears mostly in the evening. Sometimes the patients feel a crawling

and numbness of the hands, more rarely of the feet; or they feel slight drawing in the arms, in the direction of a nerve, which, after a short time, also sets in at the lower extremities, giving to the patient a tense feeling of the muscles in walking; they get tired after short exercise. During this drawing sensation, the patient is sometimes surprised by automatic movements of the muscles. After a while the extremities are affected with trembling, and for this reason the patients move with a certain haste, as for instance, in walking, they *throw* their feet forward. In a lower degree, the patients walk with their legs spread, as in *tabes dorsalis*. They cannot exercise intended motions correctly; they hurry to respond to the impulse of the will, by muscular contractions; but these are not executed as intended, either as to strength, space, or time. Instead of promptly executing the intended motion, the enervated muscles begin to tremble. Sometimes they succeed in certain round-about ways and with unusual co-operative movements; at others they are hopelessly embarrassed by the powerful action of large groups of neighboring muscles. They cannot handle small objects at all, although they may find little difficulty with larger ones.

The trembling now gradually increases so that the patients get more and more uncertain in all their movements, at last, they can neither walk, sit, nor stand. Afterwards, vibrations of the muscles of the chest and neck become synchronous, so that the head shakes on the neck. In consequence of the convulsive movements of the muscles of the tongue and larynx, stammering (*Psellismus merc.*) sets in. Sometimes speech becomes in this way quite unintelligible. The trembling may increase to perfect convulsions. *Hirt* also mentions nystagmus as a symptom of workers in mercury. All these convulsive motions of the animal muscular system are highly increased by emotions, so that the patient trembles a great deal more when he knows himself watched while executing an intended motion. But rest acts favorably when the patient lies down, having the whole body supported, the trembling soon stops. Sometimes it stops spontaneously, but paralysis takes its place. The muscles are roused to strong reaction by electricity; the

sensibility of the skin is sometimes diminished (comp. No. 36, *Mercur. viv.*).

Often sight and hearing become impaired ; afterwards, a depression of the psychical functions sets in ; the patients become melancholic and apathetic ; the memory and the faculty of judgment are enfeebled, until imbecility develops in some cases. Dyspepsia, weakening diarrhœa, emaciation, with pale, livid complexion are concurrent symptoms.

Although the picture of idiopathic sclerosis of the brain and spinal cord varies according to the nerve-centres which are affected ; the striking resemblance of its symptoms with those of the tremor merc. cannot be overlooked. Unfortunately, the pathologico-anatomical examinations of the brain of those who have suffered from tremor merc., have been too superficial to furnish clear evidence of the existence of sclerosis, but the hardness and atrophy of the brain which was manifest in several cases, corresponds with some superficial microscopic examinations of partial sclerosis. But we shall still assert that in tremor merc. a sclerosis of the brain *is* in question ; the spinal cord being slightly or not at all affected.

The vertigo ; the disturbance of speech and of the organs of sense ; the changes in the psychical sphere ; the asthmatic attacks which we find in some cases (which are also present in sclerosis of the brain and spinal cord), must be traced back to changes in the cerebrum and cerebellum ; the pons varolii and the medulla oblongata. *Kussmaul*, who does not discuss the kind of change, also traces the trembling as well as the paralysis to the brain. The reasons which he gives for this conclusion are these : " The reflex-excitability of the muscles is intact ; and when the sensibility is diminished, the gray substance of the spinal cord does not, therefore, seem to be much injured. Against the peripheric and spinal origin are urged .

- (1) The exciting of trembling and convulsions by affections of the mind , or, at least, increase of the former by the latter.
- (2) The intentness of the will causes trembling or increases it.
- (3) The muscles of the face generally commence to twitch and tremble at a very early period ; and the arms are mostly affected before the legs.
- (4) The frequent implication of heart

and respiration point to the medulla oblongata. (5) Paralysis of the bladder and rectum supervene only in fatal cases during the last stage. (6) Unmistakable cerebral symptoms of other kinds are almost always present, especially headache, vertigo, sleeplessness, ill-humor, inclination to hallucinations, etc.

The constancy of phenomena in mercury compared with the variations of symptoms in idiopathic sclerosis, is easily explained, because the specific action of our drug extends only over certain parts of the nerve-centres. Even those rare affections in the progress of the disease, such as apoplectiform and epileptiform attacks, hemorrhages and softening of the brain, we find in our history of *Mercur. viv.*

What may we expect from the therapeutic use of mercury in this disease?

If the pathological changes have already made a great progress; if paralysis has set in; if the disease has entered into the third stage, we cannot expect anything from remedial measures. But if the disease is diagnosed in the beginning, the experiment with *Mercur. viv.* in high potencies will certainly not be without success; the more so as in the initial stage, there is a tendency to intermissions and remissions, and the duration extends over many years.

12. ENCEPHALITIS; SOFTENING OF THE BRAIN.

In the recorded autopsies after *Mercur. viv.*, we find nowhere an abscess of the brain. In one case (No. 30) the brain was softened.

Hulfort says that traces of inflammation and softening have been found in the brain of mercury-workers.

Hughes says that one or both hemispheres were found softened with effusion in the ventricles of workers in mercury. Therefore, the application of mercury would be justified in this disease, with its difficult diagnosis.

Kafka recommends *Mercur. sol.* in strong individuals. *Baehr* places it after *Arnica*, which he advises to use only in the beginning. *Hughes* has most confidence in Mercury.

Of the symptoms which indicate it we name the following ones: Headache; vertigo; staggering gait; sensitiveness of

the organs of sense; pains in the limbs; paralysis. In mind and soul: Apathy; slow thinking (hesitated long before he could answer a question, No. 6, in several mercurial preparations); what he spoke did not have the necessary connection; nor did he express his feelings exactly; in the evening his mind was so weak that he looked several times at the gentleman who spoke to him, without understanding what he said. Proving of *Mercur. corr.*

It takes from him acuteness of intellect, makes him stupid; he does not hear what is asked; cannot remember what he reads; and easily makes mistakes in talking; mind very weak, his memory is impaired, and he gives wrong answers to questions. The thoughts vanish sometimes for several minutes. He does not know where he is; he could not calculate nor reason out anything. *Mercur. sol.*: Loss of memory, heaviness of speech, stammering, trembling, or convulsions; the five latter symptoms very often with *Mercur. viv.* Also amblyopia, hardness of hearing, dysphagia. We come then to the conclusion that *Mercur. sol.* and *corr.* are more suitable for acute cases, while *Mercur. viv.* might be thought of, rather in chronic ones, with deep disturbances of the cerebral functions.

13. TUMORS OF THE BRAIN.

These may find their remedy in *Mercur.* under certain conditions, when they are of a syphilitic nature; but also sometimes when they originate from affections of the bones of the skull. As a palliative, it will sometimes be suitable according to the law of similars, for certain symptoms which may be looked for in the respective chapters, viz.: for the headache, vertigo and vomiting, neuralgia, crawling sensation, twitching of muscles, peripheric paralysis, amblyopia, amaurosis, epileptiform convulsions, early marasmus, etc.

14. MENTAL DISEASES.

That mercury also influences the psychical conditions, we have seen from the chronic toxications caused by *Merc. viv.* *Esquirol* counts among 351 imbeciles, 14 whose disease origin-

ated in abuse of mercury. *Edme* even states that among 20 patients who entered the insane asylum of Charenton, 19 had passed through one or more mercurial treatments. If we allow that, in many of these cases, syphilis is more to be blamed than mercury, there remains a sufficient number of the latter to render the drug a simile in many cases of psychosis. While mental exaltations with delirium, hallucinations and illusions are rarely caused by mercury, we find much in its relations to, (a.) *Conditions of depression*: From hypochondriasis and melancholia down to idiotism and imbecility, which requires careful study. According to *Dietrich* and others, the hypochondria mercurialis is, for the most part, a consequence of the fear which the patients derive from the large quantity of mercury they have taken. Ill-humor, dejection of spirits, unusual irritability, anxious care for their state of health, fear of death, and other signs of disturbed mental functions make their appearance. These affections develop mostly in a chronic way, and are generally the forerunners of deeper mercurial affections; of mercurial nervous suffering. Mercurial idiotism generally develops chronically, rarely in an acute form, and may increase from hardly perceptible weak-mindedness, to perfect imbecility. Furthermore, the phenomena of mercurial cachexia appear more or less distinctly. This affection seems to develop more in childhood and youth.

Kussmaul says: "As these crazy notions (hypochondria merc.) are caused by the fear of the injurious sequelæ of the mercury, we can hardly attribute them to mercury itself." How then shall we explain the hypochondria of the mercury workmen? and how the idiopathic hypochondria and melancholy, which also originate in anxious care for the bodily welfare, and which often lead to paralytic idiotism without a traceable cause for their origin (not to mention hereditary disposition)? Is it not more plausible to attribute to mercury certain changes in the brain, which direct the train of thought into this track?

Kussmaul says: A dulness of the mental functions; a weakness of judgment and memory frequently accompany the constitutional mercurialism, remain a long time after it, and often reach high degrees.

With *Mercur. viv.* we find, according to the histories of diseases, the following conditions of depression: Anxiety; extraordinary timidity; is easily frightened; spirits very much depressed; she is always crying; confusion; complete absent-mindedness; memory much weakened; memory almost completely lost (twice); intellect becomes weak; idiocy (three times).

Mercur. sol.—Mind restless, uneasy, depressed; fear without definite apprehensions; indescribable feeling of an internal unbearable suffering, during which he keeps quiet, and does not want to leave the bed; thinks he suffers infernal torture; fear; fear as if he had committed a crime; nowhere rest, always anxious; fear and anxiety, he did not know where to hide himself, it was as if he had committed a crime, without passion; also as if he was not master of his senses, all day; fear, which urged flight, as if he had done something wrong, or as if a misfortune was at hand; he thinks he must lose his mind; thinks of death, with illusions—for instance, he sees water running where there is none (early); abstraction of mind, as if he had done something wrong; no desire for any earnest work; in the evening very apprehensive, starting; he has no courage to live; he rather wishes to die; is indifferent towards everything, even his favorites. All day great excitability with much indifference; he became angry when others laughed over a mere trifle; and was at the same time quite indifferent about everything surrounding him; he is indifferent towards everything in the world; has no desire to eat, but still when he eats it tastes well to him, and he can take the usual quantity; complete indifference. Everything affects him unpleasantly, even music; indifference of mind; he is very much dissatisfied with himself and his situation without any reason; all day ill-humor with anxiety; he always expects something disagreeable; all day ill-humored; he was very dull and irritable. All day peevish and angry; he thought all his troubles would be for nothing at last; during the whole day peevish, as if dissatisfied with himself, and had no desire whatever to speak and joke; longing for home; an almost irresistible desire to travel far away; irrepressible crying, with relief.

It takes from him all acuteness of mind; it makes him dizzy; he does not hear what was asked; cannot well remember what he read, and makes mistakes in speaking; mind very weak; he can hardly remember, and gives wrong answers to questions; his thoughts vanish; his thoughts vanish sometimes for several minutes; he does not know where he is; he can calculate nothing and reason out nothing; is senseless and speechless.

Mercur. corr.—Anxious imaginations; in the evening the mind is so weak, that he looks at the speaker without understanding him; weakness of mind, he stares at us and does not understand us; he cannot sleep at night on account of fear; great fear and uneasiness; ill-humor; often bad humor so that you can do nothing to please him, alternating with cheerfulness; indifference; head heavy and confused, what he speaks has neither the right connexion, nor does it express his ideas; at the same time great restlessness, of the whole body, which makes quiet rest impossible, and causes him to leave the bed; at night the patient cries, and her screams fill the whole house.

With *Mercur. præc. rub.* we only find great anguish (in No. 3).

With *Mercur. dulcis.* (No. 12), great anguish.

Cinnabaris: Indisposed for mental work. Since he has taken the medicines it is very difficult for him to fix his thought on any one object for any length of time, and his mind seems to be affected generally; he finds it difficult to arrange his thoughts and study with advantage. Depressed, melancholic, cynical state of the mind; forgets to put out the light, and to write down the symptoms; peevish and disposed to weep—he scolds others; he is inclined to get angry about trifles, and is dissatisfied with himself; greatly depressed after meals. In the afternoon, his friends remark that he is very peevish and ill-humored; fear of being ruined himself or of others being lost; indisposed to speak, it is unbearable to him to be spoken to; he wants to be alone.

In the fourth history of different mercurial preparations, *Dietrich* tells us of a case of idiocy after the abuse of mercury. In No. 6 the following symptoms appeared: Great anxiety and restlessness; general confusion of ideas, so that he spoke

without order and combination; and although he came to himself again afterwards, he always hesitated long before he could give a suitable answer to a question. As in these cases, a cold was the cause, after the abuse of mercury. *Dietrich* feels inclined to ascribe these mental diseases to a rheumatic (?) process of the membranes.

Jahr classes *Mercur. sol.* according to Hahnemann's *Materia Medica Pura*, among the most important remedies for melancholia; hypochondria; disgust of life; misanthropia; love sickness; home sickness, etc.

In our literature we find four cases of suicidal mania (mostly with anxiety) cured by mercury. In one case the cause was suppressed footsweat; concomitant symptoms; sometimes pressing or stinging headache mostly on the forehead, only in daytime; sadness, with weeping. The disease was of fourteen years standing, having been treated in vain by Plumb. ac., Aurum, Hepar, Arsen., Phosphor., while *Mercur. sol.* cured. (Pitet, *Allgem. Hom. Zeitung*, vol. 50.) The second case was a syphilitic woman who was suffering from a suicidal and homicidal mania, especially at the time of her menses; also sadness, involuntary weeping; a sort of indifference towards everything; and especially great fear to do evil and of committing suicide; at the same time something urges her to kill her husband, whom she loves very much, and she begs him to put his razor aside. She was cured by *Mercur. viv.* 12 in a few months (*Ibid*).

In the third case, the cause was suppressed footsweat. As soon as the patient saw an open window or a cutting instrument, he was thrown into a perspiration, with heat of the face, and felt an almost irresistible impulse to kill himself. Whether *Mercur. viv.* or *sol.* cured is not stated. (*Hermel.*)

In the fourth case, the suicidal thoughts were excited by the least contradiction; and the cure accomplished with four doses of *Mercur. viv.* at fourteen days intervals. (*Hahnemannian Monthly*, 5, *Dulac.*)

Having noticed, that, especially with children who are exposed to mercurial fumes, idiotism and imbecility will be easily originated, we are directed to its use in scrofulous chil-

dren whose mental functions develop slowly. But the chief remedy in such cases will be Calc. carb., besides Silicea and Sulphur.

Although the tremor merc. offers many analogies with paralytic idiotism, we can hardly expect anything in fully developed cases. But *mercury* corresponds with these sad mental conditions.

(b.) *Exaltations:*

(1) *Mercur. viv.*: Nightly delirium (twice); delirium day and night; from time to time delirium; interrupted quiet delirium; at night hallucinations and attempt to escape, left bed and room but returned immediately after expostulation.

(2) *Mercur. sol.*: Great fright from a little surprise; she trembles all over; she is as if paralyzed, and her right cheek is deeply flushed, right cheek swelled and became bluish-red, remaining so for two hours; she was so exhausted, that she could not quiet herself; all the limbs were as if beaten; severe chill; staggering of the knees, compelled her to lie down before bedtime. Uneasiness; has no rest anywhere; he can neither stand nor lie, and is almost crazy; or as if he had committed a great crime. He has no rest, must go here and there, and can rest nowhere long; greatest restlessness all night; first he gets up, then lies down again, etc.; he found rest nowhere. Irritable; angry; enterprising; very angry and irritable, very suspicious. Quarreling with everybody; assumes to be right in all cases; quarrelsome; all day peevish and suspicious. He treated the people with whom he associated almost insultingly; and looked upon them all as his greatest enemies. An almost irresistible impulse to travel far; rapid talking; he spoke nonsense; he is foolish; he made a fire in the stove at night (during the heat of summer): places daggers crosswise, and put candles in one corner of the room and boots into another, everything done earnestly; indifferent to heat or cold, but in his head he felt dull and heavy. Insanity: she uncovers herself at night, and pulls the straw around the room, scolding the while; in daytime she leaps (like a lively person) in the open air as well as in the room; she talks and scolds a great deal to herself; she does not know her nearest relatives; smears

the saliva, which she spits often, around with her feet, and partly licks it up again; she also often licks up cow-dung and the dirt out of ditches; she often takes little stones into her mouth, without swallowing them, complaining at the same time that they cut her intestines; she does not hurt anybody, but defends herself strongly when anyone touches her; she does not obey any order, does not come to table, although she eats and drinks irregularly through the day; she looks very pale and sunken, and seems to be much weaker than before. Taking a walk, he was much inclined to grasp by the nose the people who met him, using two fingers.

Cinnabaris: Every little noise around the house irritated him as if it meant something serious; restlessness and insomnia at night on account of constant flow of ideas from one subject to another; irritability; involuntary thoughts and illusions without cause.

Mercur. cyan.: The night was spent sleeplessly; he was much excited and talked without stopping, he got angry at his attendants and talked crazily in his fury, and the next night it was the same.

Mercur. corr.: Light delirium; she did not know what she did; sometimes delirium; the mental power is undisturbed, except a sort of monomania; increased cheerfulness and facility of mental exertions; absent-mindedness.

We find a single case in our literature, belonging here, in which the passage from the stage of depression to that of exaltation was induced by *Mercur. sol.*², 1-2 grains every three hours; at the same time the following symptoms were present: signs of insanity appeared after repeated trouble, on account of an inheritance; she did not care for her household as usual; became indifferent and laconic, and began to talk nonsense. Disappearance of appetite; constipation; sleep much interrupted. After three days such aggravation that she now presented the following symptoms: She is much excited, red in the face with sparkling eyes; tosses around in bed, tears the clothes from her body, tosses in bed as if looking for something, and does not know anybody. The people appeared to her to be larger in face and body, and the legs longer,

so that she took, *e. g.*, children for stout dwarfs. On contradiction, she is much excited, and strikes at all around her. Pulse full, hard, quick; skin hot and dry; urine dark, without a sediment; passes stool and urine in the bed, and likes to besmear herself all over with it. Tongue thick and coated yellow. Talks nonsense; only sometimes when severely addressed, she gives a short, correct answer, like one awaking from a heavy dream. Very sensitive to noise; even the noise of the fire in the stove is unbearable. On the walls she sees fire, sometimes also black men and animals (Opium¹, Bell.², Hyos.², useless). When there is no stool for two or three days, severe congestions of the head set in. New symptoms after three weeks treatment: dirty yellow color of the whole body, especially of the face; the region of the liver a little swollen, but nearly painless. Therefore. *Mercur. sol.*², 1-2 grains every three hours, the following day the patient spoke more sensibly, and recognized the people about her. Cured in eight days. (Hirschel's *Neue Zeitschr.*, 7, Battmann.)

In our view, *Mercur. viv.* deserves the preference over all other mercurial preparations, in combating the morbid affections which threaten to result in idiocy. The action of mercury upon the brain is a very conspicuous and penetrating one, especially shown in chronic poisoning. Its powers in this direction are, however, but imperfectly understood and appreciated. This inadequate recognition of a valuable remedy is perhaps due partly to a neglect to study the records of chronic poisoning by the drug, and partly to an habitual reliance on the assumed completeness of Hahnemann's provings. The pathological changes of the brain produced by mercury, have been already stated in other chapters, to which the reader is referred.

7. AFFECTIONS OF THE SPINAL CORD AND ITS MEMBRANES.

Only a few pathological anatomical observations justify the conclusion that mercury may affect the spinal cord; they are as follows: *Kastner, Jr.*, relates a case in which a patient suffering from mercurialism, was severely afflicted with neu-

ralgic pains in the lower extremities, which no remedy could cure. Post-mortem examination revealed a somewhat extensive portion of the cord atrophied and wilted; cord very soft (No. 30, *Mercur. viv.*). Upon the dura mater of the cord there were lamellæ of bone (No. 56, *Mercur. viv.*). Mercurial tremor, as previously stated, proceeds from the brain. The paralytic affections may also be regarded as spinal, as we shall see hereafter, although the majority of phenomena indicate their cerebral origin; probably they originate in both nerve-centres.

Before proceeding to the discussion of the individual diseases of the spinal cord, we will enumerate the symptoms of individual mercurial preparations relating to the subject.

Mercurius vivus: Some pain on pressure upon the fourth and fifth dorsal vertebræ (No. 42); attacks of eclampsia (No. 37); convulsions (Nos. 25, 30, 36); convulsions without loss of consciousness (No. 30); partial paralysis (No. 20). Paralysis of the extremities (Nos. 30, 60). Paralysis of the extremities with exception of the left arm; later, the mobility of the arm returned, but the legs remained paralyzed (No. 30). Paralysis of right arm (No. 45); urine voided into the bed (No. 35); diarrhœa with unconscious discharges (No. 28). Sensibility of skin considerably diminished (No. 36). Feeling of numbness (*Pelzigsein*) in the hands (No. 38). Drawing pains in right thigh (No. 47); also pains in various parts of the body; frequent constipation, sleeplessness.

Mercurius solubilis: In back and thighs, piercing pain with weakness of back, knees and feet. In back and legs, piercing pains on being touched. He felt as if he had no steadiness or strength in back and lower legs, from knees to soles. Sharp, prickling pains in spine between the shoulder-blades. Burning hot sensation over the whole back. Twitching of entire muscles of the right arm (815). The right arm is shaken and tossed all night (816). It seems to draw the fingers of both hands crooked, mostly the thumb, so that it is entirely inverted, as in epilepsy; without assistance, and in spite of great exertion, he is unable to straighten the fingers more than two-thirds, with trembling of the hands (852). Cramp-like contractions of the fingers and hand; they are drawn crooked

(853). Painful cramp of fingers and hand; first stretching the fingers so that she could bend them only with difficulty, but cramp after bending them, so that the fingers were drawn inwards (854). (In the afternoon) the thumb is drawn toward the index-finger (of the left hand which, during sitting posture, was held horizontally); this thumb and index-finger remained for several minutes very firmly pressed together by the cramp; at the same time there was fine prickling in the thumb; thereupon the thumb parted of itself from the index-finger, while previously it could not be separated even by force (864). Visible twitching in the tendons of the fingers (of the toes and tendo achillis), with severe chills and rigor in the evening, which tossed him up high (867). Involuntary twitching in the legs (905). Cramp-like contraction of the toes at night (964). Convulsive jerking (999). Involuntary twitching of the limbs (1000). In various parts, cramps on motion (1008). Cramp-like drawing up of the lower legs; they remained drawn up all night, although he desired to stretch them out (925). The hand is rigid and stiff (839). The legs are stiff when walking (884). She is scarcely able to drag her legs, they seemed too heavy (907). Weakness in knee and ankle-joints; worse on standing, as if the tendons were devoid of strength and firmness (920). Rigidity of every limb, so that for hours he is unable to move them at all, though they are easily movable by others (1016). The shoulders and upper arms seem as if asleep (numb), mornings in bed (803). The right hand and arm seemed as if asleep, relieved by motion (812). Deadness of the fingers (855). Numbness of the fingers in the morning (860). Frequent numbness and lameness of the thighs (891). Creeping as if a large beetle were crawling from front of right knee to the middle of thigh upwards (912). Numbness of head, of both arms and thighs while lying (1010). As soon as she sits down, all limbs go to sleep, the thighs and lower legs, upper and fore-arms, together with the hands, even to some extent the abdomen, back and chest, so that she is hardly able to feel anything about herself; everything seems to be numb and dead-like. When she moves, there is formication in the whole part, as is the case

after numbness (1011). Much gaping, and for a quarter of an hour headache; then rigid stretching of legs and arms, with inverted thumbs followed by prostration (1002).

Mercurius corros.: Cramp-like condition of lower extremities. General cramps and convulsions. Twitching. Convulsive motions of facial muscles, of arms and legs; continuous cramps in every limb. Two or three hours after taking corrosive sublimate cramps appeared, first in the toes and feet, then in hands and fingers, then in arms and legs. From time to time cramp-like motions of arms and lower legs. Sudden starting, shock-like contractions of limbs. Paralytic prostration. Heaviness of the extremities from pills of corrosive sublimate. Perfect paralysis of upper and lower extremities. Paralysis and stiffness of limbs (No. 33). Lower half of body is as if dead; its sensibility is gone (No. 27). Sensation of numbness of lower legs; sensitiveness in lower extremities is gone; the skin was pressed hard without being felt by her. Formication as if asleep in limbs (No. 40). Formication over the whole skin (Nos. 61, 56). Formication in extremities (No. 64). Numbness and loss of feeling in the limbs.

Cinnabar.: Piercing pains first in the left, then in the right side of fifth and sixth dorsal vertebræ. Dull pain in lower portion of dorsal vertebræ for a short time; from time to time shooting pains in lower extremities. General pain over whole of back and loins, worse after each dose of medicine, and deep inspiration. Shooting pains in the loins and dorsal region increased by stooping and motion. Evenings after going to sleep, a painful twitching in lower leg, which waked him up. Feeling of lameness in right arm, eighth day. Sensation of lameness in every limb; he is sluggish and sleepy. In the evening, numbness of the arm upon which he lies or supports himself. Numbness of left arm from elbow to the tip of little finger. A pressing sensation in the foot as if it would go to sleep.

Mercurius præcip. ruber. Violent cramps (No. 5). Very violent cramps in the lower extremities (No. 1). After the cure there remained a peculiar disposition to involuntary cramp-like contractions of the extremities (No. 1). Cramps in the lower extremities (No. 4).

1. MENINGITIS SPINALIS.

Pain of dorsal vertebræ on pressure, we find only under *Mercur. viv.*, from which, however, we should not conclude that this symptom might not also belong to other preparations of mercury, if these can produce so lasting an effect in small doses. Pains in the spinal column, which also radiate into the lower extremities are found under *Cinnabar*. Among the symptoms of these two preparations, we also find constipation; while retention of urine from paralysis of the detrusor muscle is not peculiar to mercurius. The retention of urine caused by *corrosive sublimate* has nothing in common with that resulting from spinal disease; since, in the former case, the bladder is always empty, and anatomical lesions of the kidneys are to be found. Pronounced paralysis results only from protracted effects of the poison; hence, we find this symptom noted only among those of *Mercur. viv.* and *corrosivus*. *Mercur. solub.* and *Cinnabar.*, however, exhibit many symptoms indicating a weakness of innervation of the extremities; the former also gives signs of contractions. While the paralysis of spinal disease begins in the lower extremities, rising upwards, that symptom, as produced by *Mercur. viv.*, takes the opposite direction. The mercurial tremor is preceded, like the spinal paralysis, by numbness and formication, which are also met with among the effects of *corrosive sublimate*. Anæsthesia is also met with here and there. While the cramps preceding paralysis in meningitis spinalis are of tonic character, the mercurial cramps are principally clonic, although the former variety are likewise indicated.

Although the indications for the selection of Mercurius are not as numerous as for other remedies, it is nevertheless a *simile* for several cases. Sleeplessness and nocturnal aggravations always constitute important indications for its selection.

Kafka gives the following indications for *Mercurius*: When paralytic symptoms occur, these indicate that exudations have already taken place in the spinal canal, for which we should, without delay, prescribe *Mercur. solub.*³ in doses repeated every two or three hours. Since the exudation is always fibrinous or

perulent, we may by this remedy achieve its liquifaction as well as its rapid resorption, in which we are sometimes successful. In case of paralysis of the muscular coat of the rectum and of the detrusor vesicæ, accompanied by retention of urine and fæces; we prescribe the same remedies (when Mercurius is inefficacious, Kali jodatum is indicated); for with the beginning of resorption of the exudation the paralysis generally yields likewise.

From this point of view, *Cinnabar.*, as a combination of two powerful resorbents, mercury and sulphur, would deserve preference; as it exhibits among its symptoms many corresponding with meningitis. In chronic cases, however, Mercurius should be our first choice.

2. MYELITIS.

As the symptoms of this disease coincide considerably with those of meningitis, the choice of mercurial preparations is determined by what we have said above. Regarding ætiological points we lay stress on those corresponding to the symptoms of Mercurius, viz.: Spondylar throcæ; syphilitic exostosis; sexual excesses; colds; suppressed perspiration of the feet. *Baehr* considers *Mercur. viv.* as the principal remedy in this disease; he says: "In case the *Materia Medica Pura* should fail to teach us that mercury possesses a very specific relation to the spinal marrow, we may frequently derive this fact from our own experience in the case of persons who have been saturated with that medicine. But we find all its characteristic symptoms enumerated in the *Materia Medica*, and whatever deficiencies may occur, these are amply compensated for by the frequent records of cases of mercurial disease, of which I have mentioned a number in former memoranda." Accordingly, we find in the pathogenesis of mercury every stage of development of paraplegia of the extremities, of the bladder and rectum; with the tendency to peculiar twitchings and jerkings, and violent pains of the spine, increased by motion; also the restlessness and sleeplessness so characteristic of Mercurius, as well as of myelitis; and finally the cutaneous anæsthesia. *Kafka* refers us to the treatment of meningitis spinalis.

3. TABES DORSALIS.

The case of atrophy treated of in the beginning, furnishes anatomical data warranting the introduction in this place of that spinal affection. As far as the symptoms are concerned, we must refer the reader to the preceding analysis of diseases of the spinal marrow. Among the symptoms of mercury, a feeling of a hoop or girdle is mentioned nowhere. The relation of paralytic affections to mercurial symptoms has already been discussed. *Kussmaul* observed paralysis of the legs of a worker in quicksilver, who, differing entirely from one paralyzed by tabes dorsalis, could walk and stand with his eyes closed. Neither do we find sufficient points of resemblance in the sexual sphere justifying a recommendation of mercury in the above disease.

8. DISEASES OF THE PERIPHERIC NERVES.

1. NEURALGIA.

Dietrich says concerning *Mercurius*: Neuralgias of the trigeminal and sciatic nerves are observed in mirror-makers. The pains often jump from one part to another, and have distinct remissions which, however, exhibit no distinct type. Exacerbations are particularly noticeable in cool weather and dampness. Corrosive sublimate in particular produces them. These neuralgias are very obstinate. *Kussmaul* enumerates facial neuralgias among those peculiar to *Mercurius*. According to *Pretschneider* (*Froriep's Neue Notizen*, Series III, vol. 9), mercurial neuralgia most frequently occurs after the use of those mercurials which exert a special effect upon the nervous system, particularly *sublimate*, *red precipitate*, *calomel*, as well as the *ointment of Rust*. An irritable, nervous system and skin, with tendency to rheumatism are counted as predisposing causes; while the *causa occasionalis* is determined by taking cold during the use of corrosive sublimate and inunctions, also mental emotions and exertions during that treatment, as well as cold baths shortly after the same. Workmen employed in great heat, mirror-makers and miners, are particularly predis-

posed to mercurial neuralgias. Mercurial neuralgia rarely begins suddenly, but generally develops gradually in the following manner: To the place which is to be the seat of the neuralgia, the patient feels first a slight drawing which soon subsides again, returns in a few weeks, thus gradually forming shorter intermissions, and finally appearing as fully developed nerve-pain. These pains are drawing, tearing, are rarely confined to one spot, but generally appear in several portions in the course of the affected nerve. The pains intermit without assuming a definite type. Particularly in protracted cases, the pain skips from one nerve to another, especially during great fluctuations of atmospheric pressure. A slight exposure to draught, overheating, mental emotions, slight touch of the affected part, or slight physical exertion are sufficient to call forth a violent attack. Such patients are able to endure only dry warmth and dry cold. Dampness produces an attack at once. When ordinary people seek the shade at 28° R., the subjects of mercurial neuralgia delight in exposing themselves to the heat of the sun. At night such patients are generally quiet; digestion as well as secretions and excretions are commonly natural. Fever was never observed in connection with mercurial neuralgia, which is one of the most obstinate disorders, and often torments the patient for years. In our cases of poisoning with *Mercur. viv.*, we find no symptoms which directly point to neuralgia.

Mercurius sol. (While sitting) intermittent boring stitches in left side of forehead, very painful (65). (While standing) painfully tearing stitches in left side of forehead (66). (While sitting) tearing stitches in left portion of forehead, with rigors all over the body, cold hands, hot cheeks, and lukewarm forehead, without thirst (67). Burning sensation in left supra-orbital arch (97). Dull stitch in left superior maxillary bone, near the eye (149). During nocturnal drowsiness without sleep, violent tensive pain along posterior portion of left thigh, in the nates down to popliteal space (where the nates is separated from the thigh by the sulcus, the ham), which is best ameliorated by placing some support beneath the thigh, or by lying upon the back; she is unable to sit upon the chair so as

to press upon the posterior portion of the thigh, without increasing the pain, which is periodically aggravated (887). Tearing drawing pain from the heel to nates, only posteriorly, almost worse at night than in the daytime; he could not walk then, because his knees gave way and were drawn together (960.)

Mercurius sub. cor.: Headache, piercing pains intermingled with pressing above left eye, increased by bending forward. Tearing pain from infraorbital region toward superior maxilla all day, accompanied by coldness about the head and piercing pains in backs of hands. Tearing burning pain from upper teeth toward the eye. Could not sleep at night owing to burning and stinging from left abdominal ring over the thigh, accompanied with desire to stretch and relief thereby.

Cinnabar: Violent pain in right supraorbital region, worse in warm room, on moving the eyes and scalp; the pain appears evenings and in the forenoon 11 A.M. (see particulars under "Headache"). During the first night after taking the 6th dilution, drawing pains in the thighs, from the hip-joints downwards almost to the condyles; increased by motion, and attended with great lameness; brought on by standing and attempts to walk; improved after a short walk. In the morning, two hours after taking the 6th dilution, while pressing at stool, shooting pains upon the posterior side of right thigh from hip-joint to the middle of femur. From second to fifth day after the 3d dilution, pain in back and thighs with unusual tiredness and weakness; during the fifth night and sixth day violent drawing pains in the back from renal region to dorsum and thighs; drawing up of the legs brings relief.

The above assertion of *Dieterich* that the trigeminal nerve (particularly the supraorbital, and as we shall see under "Toothache," the superior alveolar branch) and the sciatic nerve are affected with neuralgia, is fully corroborated by the provings.

According to *Kafka*, *Mercur. sol.* is indicated when the pains extend and spread from the supraorbital region and from beneath the orbit to the upper row of teeth, thence into the ear, temples, back of neck and shoulder of the affected side; when the attacks of pain occur particularly at night, are increased

by the warmth of the bed, and when accompanied by running of the nose, lachrymation and increased flow of saliva: when the painful portions of the face are swollen and œdematous; when pressure increases the pain, and when wrapping them up warm improves them. It is furthermore indicated in brachial neuralgia when the rigid feelings of the fingers predominates (855). Deadness of the fingers (860); numbness of the fingers in the morning (847). Hands and fingers easily become torpid during work, and are affected with cramp-like pains (839). The hand is rigid and stiff. In nightly attacks produced by warmth of the bed, with turgor of the face, perspiration without relief, and attended with rheumatism of the neck and other parts. In cases of intercostal neuralgia with burning pain when accompanying herpes Zoster (shingles), Kafka also prescribes mercurius (or Arsenic., Carbo veg.). He also recommends that medicine when the patient is bloated, perspires without relief; when besides sciatica he also suffers from other pains, *e. g.*, in the neck, between the shoulders, or in the joints; when the pain rages without remission in the night, and remits only in the morning; particularly in recent rheumatic pains and also in chronic cases arising from eczematous eruptions.

Bähr says concerning *Mercur. sol.* in neuralgia of the trigenus: The pains indicating this remedy are principally tearing, rarely piercing; they arise either at night, or, what is still more characteristic, they are aggravated toward evening and worse at midnight. The warmth of the bed increases them, and so does external cold. Great restlessness and sleeplessness accompanies the pains, and frequently there is a sensitive swelling of the affected side. Mercurius is particularly indicated when the pains proceed from carious teeth; spreading thence over the entire half of the face into the ear. The condition first described is most commonly met with after taking cold, but also when we may assume with some certainty the presence of an inflammatory affection of the nerves. Conspicuous inclination to perspiration of the affected part, is also an indication for Mercurius. In cases of sciatica and intercostal neuralgia, mercury is not mentioned by *Bähr*.

In *Jahr's Clinical Guide* we find *Mercurius* recommended

when the pains are tearing or piercing, when they occupy the entire side of the head, from the temple to the teeth, and when particularly aggravated at night by the warmth of the bed, and when attended with salivation, lachrymation, sweat in the face or about the head and sleeplessness. In case of sciatica, Jahr also mentions this remedy without further indications. In his *Leitfaden* he recommends it in rheumatic neuralgia, and in that form which accompanies "spontaneous limping," also when this has progressed to actual coxarthrocace.

Gerhard reproduces Jahr's indications, while *Hughes* does not mention mercury at all. In cases of sciatica he advises the trial of *Cinnabar*.

2. PARALYSIS.

According to *Falek*, Mercurius causes myopathic well as neuropathic paralysis; this either appears suddenly as primary symptoms of mercurial cachexia, or secondarily after mercurial tremor or mercurial erethism. As a rule, such paralytic affections are confined to the hands and arms: but they may exceptionally attack also the feet, legs and other limbs. Usually the flexors as well as the extensors suffer, which is less often the case in lead-palsy. The affection may take an acute as well as a chronic course.

Renmont states a case of complete paralysis of the vocal organ, and another case of general paralysis with general emaciation.

Halford says that paralysis is usually confined to the hands and upper extremities, and that extensors as well as flexors may be affected, wherein this form differs from lead-palsy.

Overbeck considers the classification of paralytic affections as myo- and neuropathic, established according to the tests upon animals instituted by *Falek*. The gait of animals treated with mercurial ointment became unsteady, staggering, especially the motions of the posterior extremities, which was dragging. This should be considered as owing to a peculiar stiffness of muscles, resembling rigor mortis, and is connected with the great coagulability of the blood. Whether or not the paralytic affections of man belong to this category, it is difficult to determine.

The form of paralysis considered by Falek as myopathic, Overbeck is inclined to consider as dependent on this cause; while other forms are to be considered as simply owing to anæmia. Since the forms of paralysis produced by fumes of mercury are observable usually in very advanced cases of mercurial cachexia in which the blood is very liquid, these cannot be attributed to coagulability of fibrine. If we were unfamiliar with the specific effects of corrosive sublimate upon the central organs of the nervous system, we might attribute the paralysis observed in acute poisoning with corrosive sublimate to that cause, which, however, is very problematical.

It seems objectionable to seek for the cause of paralysis in anæmia, when these affections are simply and naturally accounted for by changes in the nervous system. The case of general paralysis mentioned by Renmont might be regarded as myopathic if the emaciation were not also to be accounted for by the disuse of the muscular system. In general we consider all paralytic affections as neuropathic lesions as long as the electro-muscular contractility is not destroyed.

Since we find partial paralysis noted among the effects of *Mercur. viv. and corr.*, we admit its neuropathic origin. Before we can answer the question as to the cerebral or spinal origin of mercurial paralysis, we should first examine which phenomena seem to indicate the former and which the latter mode of origin.

The following phenomena may be interpreted as indicating the cerebral origin: The early and frequent paralytic affection of the upper extremities; trembling of paralyzed parts; infrequent and slight disturbances of sensibility; the general absence of muscular atrophy; disturbances of mental activity, as well as of the higher senses and of language; furthermore headache, vertigo, vomiting without apparent cause, and the normal condition of electrical contractility. In favor of the spinal origin we have to enumerate disturbances of sensibility, such as formication and numbness; the continuance of reflex motions, and lastly the incontinence and retention of urine occasionally observed toward the end. An important circumstance, which should generally decide doubtful cases in favor

of spinal origin, is the paraplegic character of paralysis. This we are unable to interpret in favor of spinal origin, because mercury certainly produces symmetrical disturbances in both hemispheres of the brain, thereby necessarily producing paraplegia and not hemiplegia, as would be the case with pathological lesions confined to only one cerebral hemisphere.

If we wish to draw a conclusion from this, we are forced to assume that those paralyses are mostly of cerebral origin; that they always begin as such, and that in some instances these pathological lesions will sooner or later involve also the spinal marrow in their progress.

Among the effects of corrosive sublimate, however, as observed in many cases of poisoning, we see a primary affection of the spinal marrow; as shown by the symptoms enumerated in the introduction to the diseases of the spinal cord, where the symptoms of the other preparations of mercury are also to be found.

Bahr says that *mercury* (also arsenic and iodine) very commonly produces paralytic symptoms, as proved by numerous cases of involuntary poisoning; but that we do not know the exact difference, and are hence unable to furnish precise indications. We are, therefore, obliged to assume that those three poisons exert a very powerful influence on the nervous system, on which account they are to be considered as very important remedies in cases of paralysis.

Jahr recommends *Mercury* only in paralysis after colds; in paralysis of the limbs of the whole body; of the arms and legs; then of the upper extremities alone, and of the lower extremities alone. Besides rheumatic paralysis, *Mercur.* is indicated in paralytic affections determined by disease of portions of the brain. Taking locality into consideration, we have to mention particularly paralysis of the larynx, of both or one upper, and secondly the lower extremities. If paralysis is preceded by tremor, we should at once resort to *Mercur.* Of the different preparations we should use *Mercur. viv.* in higher attenuation in paralysis of slow development; *Mercur. corr.* in rapidly developed forms; the latter is also indicated in paralysis of the facial muscles as observed by Taylor.

3. CRAMPS.

General cramps and convulsions are often met with in acute poisoning with *corrosive sublimate* and *red precipitate*; *metallic mercury* produces violent cramps in the feet (Nos. 12, 13). We have already discussed these phenomena when speaking of individual diseases of the brain, we will only remark now that these are connected with hyperæmia of the brain and cord, as well as with exudations in the same. Mercury is also recommended in cramps of the peripheric nerves. *Kafka* advises it in mimic spasm of the face, if produced by exposure to cold, when connected with pain, and when confined to one side (also *Bellad.* and *Hyosc.*). Furthermore, when caused by carious teeth, or inflammation of their roots. *Bähr*, *Hughes*, *Jahr* and *Gerhard* do not mention this remedy in connection with facial spasm.

Among the symptoms of *Mercur. sol.* we find the following: The muscles between lower lip and chin were visibly drawn hither and thither by spasm (229); at 3 A.M. distortion of the mouth toward one side, with want of breath (230); but the latter symptom might be attributed to paralysis of the facial nerve. In chronic one-sided cramp of the sterno-cleido-mastoid muscle, *Kafka* obtains the most rapid and lasting effect from *Mercur. sol.* (or *Bellad.*). We know that the fumes of quick-silver cause chronic cramps, frequently befalling the muscles of the upper extremities, which sufficiently explains *Kafka's* results. *Mercur. viv.* may deserve our preference. *Hughes* recommends mercury in wry neck.

Trismus corresponds to symptoms (235-238) of *Mercur. sol.* He cannot separate the jaws. A tension in the maxillary joint on opening the mouth. Almost complete immobility of the jaw, so that he can scarcely open the mouth a little, with violent pain. She is unable to separate her jaw.

Among the symptoms of other preparations we find several having a bearing on this subject.

While *Kafka*, *Bähr* and *Hughes* do not mention mercury here, *Jahr* and *Gerhard* recommend it. Since trismus neonatorum is always connected with the process of cicatrization of

the umbilicus; and since post-mortem inspection of infants who died of trismus, reveal ulcerations of the coats of vessels of the umbilical cord, with pus and ichor within and without these vessels; mercury will certainly have a favorable bearing on this ætiological point, and thereby result in cures.

9. NEUROSES.

1. CHOREA ST. VITI (*Saint Vitus Dance*.)

There is an undeniable resemblance between tremor mercurialis and chorea: "In both cases the disease begins gradually as a rule. The patients are at first excited, morose, easily startled and livid; there is vertigo, headache, rigors, formication; motions begin to be hasty and unsteady, and seem to arise from embarrassment, hence we observe a great degree of resemblance in regard to the initiatory cerebral and neurotic symptoms in general.

Emotions call forth the threatening attacks of chorea and tremor, and increase the involuntary motions which are already present.

Reflex motions are undisturbed in both instances. Urine and feces are normally voided in chorea. Both affections intermit during sleep, with rare exceptions, and exhibit frequent remissions and exacerbations during waking hours.

The relation which both forms bear to the will is very similar. Although patients are still able to initiate motions, they are unable to execute them in accordance with the original purpose, for they are interrupted by involuntary trembling and jerking motions of one or both sides. Mercurial tremors differ from the beginning by being more prominent, and those suffering from mercurial cachexia are from the outset rather weaker, embarrassed and frightened; while those suffering from chorea are rather more awkward or unruly. As the disease increases the trembling motions of chorea play a subordinate part, and may be altogether absent; while in *convulsive tremor* these trembling motions may coexist with the spasm in a marked degree."—(Kussmaul.)

A second difference may be found in the fact that the mus-

cles suffering from mercurialism, if supported in bed or otherwise, will become quiet, which is not the case in chorea. The symptom of *Mercur. viv.* (case) of No. 39, corresponds to chorea major.

The absence of any allusion to mercury as a remedy in chorea, may be owing to the absence of any symptom pointing to that disease in *Mercur. sol.* We would employ *Merc. viv.* in rachitic, scrofulous children, suffering from hereditary syphilis, and troubled with ophthalmia, swollen glands, cutaneous eruptions, affections of the bones, etc.; also where the disease is complicated with chlorosis, tuberculosis and scurvy; also in helminthiasis.

2. EPILEPSY.

Several authors mention mercurial epilepsy. *Montanus* (1550) says that he has seen patients who had epilepsy after inunction with mercurial ointment. *Zanetti* also communicates a case resulting from the use of mercury. *Falek* makes the following statement: "The form of epilepsy resulting from mercury, as mentioned by Van Swieten and others, is not symptomatically different from other forms of epilepsy. But the origin of the disease becomes obvious, when it is traced to the incorporation of mercury, after which it immediately follows and so speedily vanishes with the elimination of the quicksilver. The disease is usually chronic in its course, and not infrequently connected with mercurial tremor. *Overbeck* and *Kussmaul* question the validity of this mercurial symptom. *Halford*, on the contrary, affirms that mercurial epilepsy may appear without tremor; that it is chronic in its duration, and differs in no respect from ordinary epilepsy. Sometimes the attacks of mercurial epilepsy are so violent that they produce complete exhaustion of cerebral functions, and even death. In some of our cases of poisoning we find convulsion (Nos. 25, 30, 36, 37). Attacks of unconsciousness we find in (Nos. 44, 45). In No. 30, we observe screaming during the attack before the convulsions, without complete loss of consciousness; but we nowhere meet with the entire complex of symptoms of an epileptic attack.

Hence we shall rarely be reminded of mercury by the symptoms of epilepsy. Besides the symptoms mentioned in connection with chorea, the nightly occurrence of paroxysms, as well as circumscribed cerebral disease, would attract our attention to *Merc. viv.*

Baehr, Karika, Hughes, do not mention Mercur. *Gerhard* recommends it in nocturnal paroxysms with screaming, rigidity of the body, distention of the abdomen, itching of the nose, thirst; which indications are derived from *Jahr's Anweisungen* (Clinical Guide). According to *Richter*, the older authors observe increase in the frequency of attacks of epilepsy after mercury; nevertheless they cured a number of the most obstinate cases with this medicine.

3. PARALYSIS AGITANS.

Eulenberg says (in *Ziemssen's Hand-book of Spec. Pathol. and Therap.*, Vol. XII), that among the various forms of toxic tremor, that of mercury furnishes a symptomatic image, exhibiting the most decided similitude with that of paralysis agitans; whence it is regarded by certain authors (*e. g.*, *Copland*) as quite identical with the former. This similitude extends to the greater intensity and extent of the tremor, to the secondary accession of paralytic symptoms, and to the accompanying cerebral symptoms, including, especially, those of the mind.

On tracing the similitude into its details, we find that in both kinds of tremor the trembling appears in form of feeble, oscillating vibrations, succeeding each other rapidly, and that these increase until they become violent clonic jerking; beginning mostly in upper extremities, it passes gradually to the lower extremities and facial muscles (according to *Charcot* the head is never involved in paralysis agitans), in which latter case stammering is noticeable. If the cervical muscles are affected, it produces shaking and pendulous motions of the head. After longer or shorter duration of mercurial tremor and of paralysis agitans, palsy is developed, during which the electrical reaction of the affected muscles remains intact. In both forms the voluntary muscles of the bladder and rectum

are rarely attacked by palsy. The rigidity of single muscles, as observed in shaking palsy, was corroborated by *Overbeck* in his experiments upon animals.

The impulsive inclination to run forwards we also find in one of our clinical cases (No. 39). Violent paroxysms of paralysis agitans are called forth by mental exertion, emotions, etc.; the same causes are found to increase the violence of mercurial tremor.

Disturbances of sensation, such as creeping, prickling, formication and partial anæsthesia, are common to both forms of disease. The same is the case with cerebral symptoms, such as headache, vertigo, sleeplessness, mental depression, hypochondriasis, and even strongly developed melancholy; in rare cases hallucinations. When either form has endured for some time, weakness of memory and power of judgment are observable.

The course of both diseases is slow. The pathological lesions resulting from both are induration and atrophy of the brain, or parts of the same; also of the upper portion of the spinal cord.

The following differences are observable between the two forms of disease. In paralysis agitans the trembling continues for days without abatement of force, but remits for days, and is entirely independent of voluntary motion, and even intermits when motions are purposed by the will. Mercurial tremor on the other hand subsides when the body is supported, or *e. g.*, in bed; it does not pause at other times, and is most noticeable during the exertion of will (intention) to move, and, indeed, appears only at that time. In the former case the extensors are principally affected, while mercurial tremor affects all muscles of the body.

According to this prominent similitude, Mercur. is certainly to be regarded as a similitimum of paralysis agitans; and *Mercur. viv.* is most probably the remedy which in high dilutions will prove most successful. Other preparations also cause tremor, but much more rarely. It is the only medicine which *Hughes* mentions in connection with this disease; while *Jahr* adduces mercury and other remedies also. Also the chronic tremor of toppers falls within the sphere of action of mercury;

and if senile tremor is to be mitigated, mercury will be the remedy.

10. DISEASES OF THE EYE.

1. CONJUNCTIVITIS.

When we inquire into the effects of individual mercurial preparations upon the conjunctiva, we find the following under *Mercur. sol.*: he cannot open the eyes easily, as if the eye-balls were stuck fast: while standing, sitting and walking, his eyes seem to be forcibly drawn together, as if after losing sleep for a long time. *Fire and light blind him exceedingly in the evening.* Burning in the eyes as if after reading too long at night; one eye is red; the eyes are unable to bear fire- and daylight; burning in the eyes; burning and tearing in the eyes as if caused by horse-radish; many red vessels become visible in the white of the eye; inflammation of both eyes with burning, smarting pain; worse in the open air; heat in the eyes and lachrymation; lachrymation of the eyes in the morning; much lachrymation of the right eye; the eyes shed tears in the open air; the eye is full of tears; burning pain in right upper and lower lid; the left lower lid is much swollen, especially near external canthus, with burning pain for five days, with much lachrymation, preceded by much sneezing for three days. In the morning the eyelids stick together; the upper eyelid is tumid and red like a hordeolum; constant twitching in lower lid; much swelling, redness and constriction of the eyelids, which are very sensitive to the touch. *Pressing in the eyes*; pressing in the eyes as if caused by sand; pressure in the eyes on motion, also touching it causes pressing pain; itching in the eyeballs; in the left eye pricking pain for some minutes; pricking (stinging) in the eyes; feeling beneath left upper eyelid, as if a shining object were behind it.

Corrosive sublimate.—Burning of the eyes, especially of the edges of conjunctiva, as in the beginning of taraxis catarrhalis; the glandules of the lids are inflamed; the eyelids are red, protruding and inflamed (4); the mucous membrane of lids of both eyes is reddened and much injected; the conjunctiva is

reddened; burning and feeling of dryness in the eyes; lachrymation in the open air; itching in the left eye; inflammation of the eyes, which protrude from their sockets (No. 8); red and shining eyes; conjunctiva inflamed; photophobia when walking in the sun.

Mercur. præcip. ruber.—Redness of the eyes; chemosis (No. 2).

In Eiselt's proving we find: Great improvement of an inflammation of glands of the eyelids which had existed for years, and which has since then disappeared entirely.

Mercur. cyanid.—In *Capeless'* case the conjunctiva was reddened.

Cinnabaris.—Shooting pains in internal canthus of right eye, with burning and itching; great secretion of tears; (inflammation of the right eye; it itches, aches and pricks in the inner canthus and on lower lid, with constant lachrymation when he looks upon anything, with violent running coryza Hahn.); feeling as if a foreign body were in the eye, lasting for three days; feeling as if the eyelids were enlarged or swollen; itching in the lids of both eyes; redness in the canthi, mostly the inner; the right eye is more affected than the left; the cornea seems surrounded with a red ring; all of these symptoms were aggravated on the evening of the first day; the eyes are watery and dim, with violent stinging pain in inner canthus of left eye, as if something sharp had pierced the lower lid; pain in inner corner of left eye, with redness and swelling, mostly of the lower lid; from time to time feeling of lachrymation in the left eye for three days, always disappearing in a few minutes; lachrymation; a little (transparent) vesicle, painful to the touch, in inner edge of eyelid; itching and stinging in outer and inner corner of the eye for eight days; while sitting at home in the evening, a feeling as if cold air were sweeping over the eyes, very marked; eyes very sensitive to cold air while walking out of doors; redness of inner corners of eyes on the fifth day; redness of the whole eye with swelling of the face; weakness of the eyes with redness of canthi; burning pains; painfulness of the eyes; worse evenings; dull pressing pain in the eyes; feeling of fulness in head and eyes, with redness.

Mercur. viv.—After inunction, we find in *Overbeck's* experiments upon animals: once purulent conjunctivitis of both eyes; once purulent conjunctivitis of right eye; in man (in No. 11): eyes are inflamed with much lachrymation and excretion of whitish mucous matter. After exposure to fumes of mercury: burning in the eyelids, and slight redness of the conjunctiva, especially the right in No. 40; chronic conjunctivitis, with a fine rose-colored circle of blood-vessels around the edge of cornea and sclerotic in No. 34; serofulous ophthalmia in No. 25.

Dietrich emphasizes mercurialis in conjunctivitis, particularly the pink injection around edge of cornea and the pressing pain in the eye. Most other authors lay stress upon the great sensitiveness to light.

(a) *Conjunctivitis Catarrhalis:*

Baehr says: Much better and more certain results (than Bellad. and Euphrasia) are secured by *mercury*, whenever the disorder is connected with general catarrh. In this case it acts as favorably upon the ocular mucous membrane as it does in other cases upon the mucous membrane of the nose, and deserves to be called our principal remedy for coryza. Why Hartmann does not mention it is inconceivable. It will be found most effectual in affections of children. In the chronic form Baehr also recommends *Mercur. jod.* and *Mercur. præcip. ruber.*

Jahr recommends *mercury* in cutting pains or pressure, as if caused by sand in the eye, especially after *exertion of the eyes*, and when it appears evenings or in the warmth of the bed; when there is tearing, itching and *pricking (stinging)*, especially in open air; with *red sclerotic*, with *red vessels* in the eye; copious lachrymation, especially evenings; excessive sensitiveness of the eyes to fire- and daylight; vesicles and pimples on the sclerotic. Pustules and scabs around the eyes and edges of lids; vision dim as if through a fog; renewal of the inflammation on least exposure to cold. *Gerhard* furnishes the following indications: ophthalmia, with appearance of numerous blood-vessels through the eye, accompanied by burning, stinging, itching or heat in the eye; cutting pains and also *pressure as if caused by sand*; when looking intently upon objects; *ulcera-*

tive inflammation of the lids, with swelling and nocturnal agglutination of the eyelids; lachrymation and spasmodic contraction of the lids; great photophobia.

Dudgeon gives *Mercur. sol.* (or *Hepar sulph.*) when the Meibomian glands are much affected, when the canthi (angles of lids) are red and swollen, and when the secretion forms yellow crusts upon the lashes at night.

According to *Guernsey*, mercury should be employed when the eyelids are much swollen, and when there is much pus beneath them, which wells out in masses when the lids are opened.

Peters (Diseases of the Eyes) gives the same indications as *Dudgeon* for conjunctivitis, and at the close of the chapter he enumerates the symptoms bearing on the disease, which we will mention here. *Mercur.* is indicated when the lids are agglutinated in the morning; when there is pressing, stinging and tearing in the eyes, with heat and lachrymation; inflammation of both eyes, with numerous red vessels in the white of the eye; photophobia; inflammation of the conjunctiva bulbi et palpebra; redness and swelling of the lids; excoriations in the canthi; burning and itching of the lids, thick muco-purulent secretion, agglutination, ulceration and eversion of the lids.

Payr says, concerning the application of mercury, as follows: Light cases will yield to *Acon.*, *Apis* and *Euphrasia*; but neglected or maltreated blenorrhœa (according to *Arlt* we confine this definition for the gonorrhœal ophthalmia), with profuse, purulent secretion, demands the administration of mercury, which is furthermore called for by the increased swelling of the lids, the sensitive pain on pressure which permits no rest before midnight, also the accompanying febrile symptoms with perspiration without relief. Chronic catarrh of the conjunctiva, which, during its course, is often aggravated by various causes, and where we observe slight swelling of the upper lid, intensification of subjective symptoms, and purulent character of the secretion, with much unevenness and swelling of the tarsal portion of the conjunctiva, and the part forming the transition between lid and bulb, which, by means of the intensity and

protracted course of the acute stage produced a certain degree of ptosis of the upper lid, and even partial ectropion—are all rapidly to be improved by *Mercur. præcip. ruber*.

In order to avoid repetition, we omit the recommendations of other authors, but call attention to the probability that *Mercur. præcip. ruber* promises much in chemosis, because we find it distinctly represented among its symptoms.

We agree entirely with Payr in regard to *croupous conjunctivitis*, when he recommends the *protiodide of mercury*; since iodine possesses the property of favorably acting upon croupous exudation in a higher degree than mercury.

In *conjunctivitis diphtheretica*, when the cornea is affected (that is when the least degree of dimness appears), *Payr* administers corrosive sublimate in order to obviate necrosis.

1. CONJUNCTIVITIS BLENORRHOICA.

In this disease *Kafka* administers *Mercur. sol.*³ (or *Hepar sulph.*³) with rapid effect, when the eyes are œdematous; the pain burning; when the purulent secretion runs copiously and excoriates the canthi and surrounding parts.

Bæhr says: "The similitude of the affection of the conjunctiva with syphilitic gonorrhœa, and even the possibility of infection from the latter, permit the conclusion that there is no more appropriate remedy for this disease than mercury. The question is which form of this remedy is to be preferred, and we do not hesitate to declare in favor of the strongest mercurial preparations, such as *red or white precipitate*, but more particularly *corrosive sublimate*. The latter has the advantage of allowing of easy local application, which should never be neglected in view of so much danger to the power of vision."

For this purpose *Bæhr* recommends a solution of several grains of the second trituration in distilled water. In *ophthalmia neonatorum* *Bæhr* considers "mercury as the principal remedy, particularly when infection on the part of the mother can be discovered." In chronic blenorrhœa of the conjunctiva and in the first stage of that disease (before infiltration and excrescence of the conjunctiva are noticeable), *mercury* is the remedy principally indicated.

When *Hughes* recommends mercury in chronic ophthalmia with granulation, we shall not err if we apply this to the second stage of chronic blenorrhœa.

Guernsey's indications for mercurius in ophthalmia neonatorum have been already mentioned under the head of conjunctivitis.

When Aconite has modified the inflammation without restoring the discharge, *Jahr* recommends corrosive sublimate (or Pulsat.). If mercury fails to cure the remnants of disease remaining after the subsidence of actual danger, Nitric acid is the remedy.

Fuelfft recommends *Cinnabar* when there are condylomatous growths upon the iris, or edge of pupil (iritis), or on the edges of the lids, and when the course of the disease and the symptoms create a suspicion regarding sycotic complication. Corrosive sublimate is indicated in exudation.

Gerhardt mentions *mercury* among the remedies for blenorrhœa ophthalmia without other specification.

Payr recommends *red precipitate* after or with Aconite in the beginning of the acute, and in chronic blenorrhœa when irritability is still severe, and croupous exudation very conspicuous.

Gerson recommends *Calomel*.

Goullon calls *red precipitate* a specific in *ophthalmia neonatorum*.

Fuelfft says that when *ophthalmia neonatorum* results from leucorrhœa of the mother (the condition we have particularly in mind), he prescribes *Mercur. sol.* when the discharge is watery; when accompanied by diarrhœa of green stools; excoriation of anus and genitals. Under the same conditions *corrosive sublimate* is preferable to *Mercur. sol.*, when the secretion is excoriating and causes soreness of the facial integuments. According to *Fuelfft's* experience corrosive sublimate is the principal remedy in this disease. It is obvious that in a disease of such severity and frequently terminating in blindness, speedy relief is of the utmost importance, and we may be easily convinced by experience that *Mercur. sol.* acts too slowly in cases of this kind. We should, therefore, search for mercurial preparations which act rapidly and specifically upon the conjunctiva, and we may regard *corrosive sublimate* as a medicine of this kind.

In many recorded cases of poisoning by this medicine there are but few symptoms of rare occurrence which have a bearing on the conjunctiva. It is generally speaking the most active mercurial preparation, from which, however, we should not conclude that it is the most potent mercurial in relation to the eye in general (though iritis seems to be most commonly produced by corrosive sublimate). It is, on the contrary, to be assumed that since it acts prominently upon vital organs, the eye experiences the least share of its power. In the small number of cases of poisoning by *red precipitate*, we discover symptoms distinctly pointing to blenorrhœa of the eyes, on which account we unhesitatingly give our preference to this medicine.

(c) *Conjunctivitis Scrophulosa*:

Cinnabar is to be recommended in the circumscribed inflammation of the conjunctiva, not only on account of its being composed of two of the most potent anti-psoric medicines, mercury and sulphur, but also on account of the pathogenesis of that substance. Among the effects of *Cinnabar* we find the most distinct tendency to produce circumscribed conjunctivitis. Although this is not found near the conjunctiva but in the canthi. Furthermore, we find the development of vesicles (which, however, as regards locality do not belong to scrophulous conjunctivitis), and a red vascular circle around the cornea.

Observations furnish the following indications:

Kafka prescribes *Mercur. sol.*³ when the Meibomian glands are contemporaneously affected, and covered with pustular dots, and when the nodules are infiltrated. In obstinate cases of ophthalmoblenorrhœa, corrosive sublimate has proved very effectual in his hands.

Behr says: When the exudation has extended to and upon the cornea, mercury is certainly the most prominent remedy in that form of the disease which is characterized by crethism, and corrosive sublimate is the most efficacious preparation; this should, if possible, also be used locally. Since a very rapid effect of a remedy is not to be expected in scrophulous ophthalmia, we should not cease in the use of mercury too soon, particularly as it is the most appropriate remedy in the

formation of ulcers. Contemporaneous cutaneous affections, especially eczema of the face with severe itching, point strongly to that remedy. Its local application is to be made very cautiously when deep ulceration of the cornea exists.

Jahr begins the treatment of this disease of the eye with *mercury*, if this medicine has not previously been abused. It is indicated particularly in cutting pains with great photophobia and aggravation in the warmth of the bed.

Hughes recommends principally *corrosive sublimate*.

Herring finds *Mercur. sol.* most useful after previous use of *Bellad.*, when in the case of young children the pains in the eye are cutting, especially on exerting the eyes, with aggravation in the evening and in bed, with burning, smarting and lachrymation in the open air. Photophobia with mistiness of vision, or when little pustules or vesicles are visible upon the eyeball, and when aggravations occur after every exposure to cold.

Becker employed *corrosive sublimate* with the best results externally and internally in the erethistic form; he furnishes the following indications: The eyelids are much swollen and spasmodically closed; the upper lid projects downward and covers the lower lid; there is much dried mucus upon the tarsal edges. The Meibomian glands are much inflamed; discharge of thick pus and mucus; great photophobia; the patient remains in the dark. Cornea is full of ramifying blood-vessels, and ulcers threatening to penetrate the same. Chalky white excrescences on the cornea, incipient staphyloma. Conjunctiva much inflamed, swollen, velvety and covered with papillæ. Anterior chamber of the eye is filled with pus; surrounding parts and cheeks are red, swollen and covered with little pustules. Cervical glands are hard, swollen; eruption upon occiput.

Gerson has prescribed *red precipitate* successfully in scrofulous ophthalmia, and finds it indicated when the tumefaction of the conjunctiva is not very marked, but when it is bright red; the secretions purulent without excoriating the cheeks, and when the photophobia had not reached its greatest intensity. It was given even where the conjunctiva bulbi was effected and showed phlyctenular formations. The patients

were scrofulous children who were not much reduced by want of food. Also where affections peculiar to dentition were present, seeming to maintain or increase the inflammation, Gerson has often seen excellent results from *red precipitate*. He witnessed better effects from *corrosive sublimate* than from other mercurials, when the inflammation was of erysipelatous character, the swelling œdematous, the secretion thin and ex-coriating the surrounding skin, when the pain is severe, the tarsal spasm unconquerable, and when aggravations occur at night.

Hirsch recommends *corrosive sublimate* in the erethistic form, with redness and much swelling of the spasmodically contracted lids; excessive photophobia, so that the children either retire to a dark corner of the room closing the eyes with their hands, or creep about with their eyes continually closed and with drooping head. The scalding tears, which flow at every attempt to open the eyes, cause redness, soreness and pustular eruption of the surrounding skin; intense redness and swelling of conjunctiva palpele at bulbi, from which single collections of blood-vessels are seen to stretch toward the cornea, and to reach beyond the more or less cloudy edge of the same. The anterior chamber is full to bursting and the pupil contracted.

According to *Tuelff* *corrosive sublimate* is indicated mostly in the erethistic form when the pain is severe, and when the secretion is acrid and corroding, producing an eruption of pimples all over the face.

According to the experience of *Cl. Mueller* *corrosive sublimate* is indicated only in the rarely occurring erethistic form, with considerable development of ulceration. In a latter article (*Goullon Hom. Presse*, IV), he says: "When the photophobia and pain are somewhat subdued, or when these are present only in moderate degree, I employ the remedy which according to my experience is prominent in producing a decided effect upon the cornea, and which more than any other remedy is capable of curing inflammations, ulcerations and opacity; this remedy is *Mercur. sol.* In a great many cases I have observed very decided curative effects of this remedy, and therefore do not hesitate to ascribe to it a truly specific action. But we

should not expect such results in a few days, but should rather persevere with the remedy, occasionally pausing in its administration in order to give a few intercurrent doses of Sulphur when improvement ceases to progress, or when it is tardy in beginning. In acute cases when deep ulcers threaten to form perforations, he gives the 3d trituration in frequent doses.

According to *Payr* Mercurius corresponds to the pustular formation. In ulcerative processes of the cornea in erethistic, serofulous individuals corrosive sublimate is indicated, when subjective symptoms preponderate largely over the objective, and display a great degree of obstinacy.

According to *Goullon* *Mercur. sol.* is to be regarded only next in order.

2. KERATITIS.

Among the pathological changes caused by mercury, there are none having any bearing upon keratitis. But since in affections of the cornea, the conjunctiva is also diseased, and combines its symptoms with those of the former, and since the general changes occurring in an affection of the cornea correspond to the general effects of mercury, we shall find the latter indicated in the rheumatic, serofulous and syphilitic form of keratitis.

Hughes recommends *corrosive sublimate* in the serofulous and syphilitic form, especially in the presence of ulceration.

Peters also mentions *mercury* as a remedy in keratitis.

Among the recorded clinical cases which generally appear under a faulty nomenclature as rheumatic and gouty ophthalmia, there are some cases of kerato-iritis which were cured with *mercury*. The cases cured by *Schelling* (*Hygiea*, Vol. 19), with mercury, seem to have been of the serofulous kind.

Freytag also recommends *Mercur. sol.* in diseases of the cornea.

Payr recommends *Mercur. sol.* in traumatic keratitis when the opacity is widely diffused and saturated, so as to prevent observation of the anterior chamber, and when the concomitant symptoms, such as pain, lachrymation, photophobia and swelling of the lids are severe. When the symptoms are violent, he combines internal treatment with application of mer-

curial ointment and extract of Bellad. (!) over the superciliary arch, in order to obviate the deplorable consequences of closure of the pupil in iritis. He also observed speedy result in rheumatic keratitis. According to Arlt we have considered herpes of the cornea as serofulous conjunctivitis, and have discussed it as such. In the parenchymatous (serofulous according to Arlt) keratitis, mercury is superior in effect to all other remedies, and most surely prevents suppuration.

3. ULCERS AND ABSCESES OF THE CORNEA, OPACITY.

Behr says: In abscesses of the cornea *mercury* is the chief remedy, particularly when the suppuration is circumscribed.

Jahr mentions *mercury* in connection with opacity of the cornea, but as a remedy for ulceration he assigns it to the second class.

Gerson recommends *corrosive sublimate* in corneal ulcers of serofulous children, when the ulcer spreads rapidly, with ichorous secretion and excessive pain and photophobia. He recommends *Mercur. sol.* in opacities of the cornea (with *Hepar sulph.*)

Cl. Mueller succeeded in curing only one out of ten cases of opacity of the cornea with due rapidity, and that case was of recent date. He met with better results afterwards. During the year 1873, out of twenty-one cases of opacity and cicatrization of the cornea, seven were cured, five improved, and one remained under treatment (the others only came once, or absented themselves). In these cases he gives *Mercur. sol.*³⁰ in infrequent doses.

Under the head of Diseases of the Conjunctiva several authors have mentioned mercury as indicated in corneal ulcers.

Payr recommends Bellad. in alternation with *mercury* in suppurative keratitis (abscess of cornea, onyx and hypopium as secondary effects, according to Arlt) when there is considerable hyperæmia and swelling of the conjunctiva and of the episcleral connecting-tissue, together with great increase of temperature, according to the constitutional excitement of the vascular system and other concomitants. After lessening these latter symptoms, he gives mercury alone. This is indicated

particularly by nocturnal pains and consequent sleeplessness; he gives it only as long as the suppuration of the cornea continues.

Payr treats onyx as he does an abscess of the cornea. In obstinate opacity of the cornea he recommends *Calomel* to be applied to the eye in the form of powder; red *precipitate* as a salve, and corrosive sublimate in the proportion of one-quarter to one-half grain to the ounce of distilled water, as an eye-wash.

4. STAPHYLOMA OF THE CORNEA.

Payr very properly denies the possibility of curing fully developed staphyloma, but recommends, among other remedies, *mercury* as a preventative.

5. SCLERITIS.

Only *Jahr* treats of this disease in special. He says: "In this disease *mercury* is and continues to be the chief remedy." In Rückert's "Clinical Experiences," mercury is mentioned when the sclerotic is red as blood, tumid and loose in texture.

Hartmann also recommends *mercury* in violent cases of scleritis.

6. IRITIS.

Many authors such as *Hunter*, *Bele*, *Scarpa*, *Pearson*, *Ammon*, *Werklin*, *Travers*, *M. Jäger* and many others do not admit the existence of syphilitic iritis, but ascribe the same to the effects of mercury. Particular attention is attracted to the case of *Werklin*, in which iritis appeared together with gummy tumors upon a patient who never had syphilis, and who took *Calomel* with opium for facial rheumatism. In the list of enumerated symptoms we find all the characteristics of iritis, such as injected state of vessels, pressing, burning pain in the eye; photophobia; induration of the iris; irregular shape of the pupil and hypopion; there is violent burning pain in the supra-orbital region on forehead, sight is nearly gone. In rheumatic iritis all symptoms are much more intense and its course a rapid one.

When we duly consider the fact that *Fricke* treated 15,000

syphilitic patients without mercury in the Hamburg Hospital without observing a single case of iritis, and that *Hennen* saw only two cases of iritis among 407 patients, while under mercurial treatment, and that iritis belongs to the common affections of the secondary period during mercurial treatment, we are justified in concluding that the inflammation of the iris is due to the effect of mercury in many, if not in most cases.

While *Cooper* was administering mercury in a scrofulous affection, he observed the development of iritis.

In *Amman's Journal* (*Zeitschrift für Ophthalmologie*, Vol. 1), we find the following statement: In the case of a man and a woman who had taken corrosive sublimate for chancre without producing salivation, ophthalmia of the right eye set in. This extended not only to the posterior surface of the cornea, but also to the serous covering of the iris. The pupil was angular; the eye very painful and felt as if it were too small, and all sensations increased while in bed.

Under the head of mercurial inunction (No. 1) we find that *Basedow* enumerates iritis among the effects of mercury. Under the head of corrosive sublimate (No. 26) we find iritis with angular pupil. The frequent occurrence of dilatation and insensibility of the pupil after corrosive sublimate, is probably to be regarded as a nervous irritation. Thus we have given sufficient evidence that mercury as a metal, and in its two combinations with chlorine (besides *Werklein's* case, that of *Cooper* may also be one in which iritis was caused by Calomel) is capable of producing inflammation of the iris; we will thus proceed to consider the recommendations of individual authors.

Kafka advises a speedy resort to mercury when the pain in the eye is violent, when the head is affected, with photophobia and lachrymation, contraction of the pupil and discoloration of the iris. In such a case *Kafka* recommends *Mercur. sol.*² in three or four doses daily; together with inunction of grey mercurial ointment above the painful eye and temple of the affected side every morning and evening. As soon as the pain is lessened (by local application of a solution of Atropine), and as soon as the photophobia and contraction of the pupil are removed, *Kafka* diminishes the action of mercury by omitting

inunction and *Mercur. sol.*, and continues to administer *corrosive sublimate* or red *precipitate* until the exudation which entered the anterior and posterior chamber is removed, and until the last remnant of iritis has vanished. This desirable result is obtained in most cases when we are consulted in time and recognize the nature of the case at once (iritis syphilitica.)

Bähr says: In the beginning of cases of iritis not dependent on other constitutional causes *Bellad.* and perhaps *Acon.* are to be employed, but only in the earliest stage of the disease. But as the course of the affection is a very rapid one, we should now resort to mercury as the chief remedy. *Mercur. corr.* is the preparation to be used. In the treatise on therapeutics of syphilis, he says: Iritis can scarcely be treated without mercury, but very cautiously. *Corrosive sublimate* is the best form of preparation, and most speedily obviates the danger.

Hughes also considers *mercury* as the chief remedy in rheumatic and syphilitic iritis, and refers to *Peters* as an authority. The latter mentions mercury as the first remedy in rheumatic iritis, as well as in the syphilitic, scrofulous and arthritic forms of the disease.

Yeldham says, regarding syphilitic iritis, there is no doubt that *mercury* is our sheet-anchor in this disease, and it is usually the only remedy indicated. In fact there are but few phenomena in medicine more interesting than the visible effect of this medicine in reducing the inflammation and the exudation, and in restoring the pupil to its normal condition. It should be administered in large and frequently repeated doses; about five or ten grains of the second decimal trituration every four hours.

Jahr admits that he has never treated a case of developed iritis syphilitica with characteristic tubercles or condylomata, but he would in such cases first use *Cinnabar* (why?).

Cases of iritis cured with mercury are to be found in *Rückert's Klinischen Erfahrungen* (Clinical Experiences), in the chapters on "rheumatic" and "gouty" ophthalmia.

Our oculist, *Payr*, says: In the collection of our drugs, the mercurials are those in particular which we use with success in iritis. Among the preparations of mercury we consider *red*

precipitate and *corrosive sublimate* as the most reliable ones, but freely admit that in consideration of the rapid development of exudation, and the somewhat tardy effects of mercury in acute cases, we have employed an adjuvant not to be underestimated, namely, grey mercurial ointment, which is to be rubbed vigorously into the superciliary and temporal region of the affected part two or three times a day.

Although we consider general inunction (*Schmierkur*) urgently recommended by many as superfluous, we would nevertheless favor a milder local treatment, particularly because its omission in former times, when employing exclusively internal mercurial treatment, has ended in serious failure, such as posterior synechia of considerable extent, and anteriorly capsular cataract. We administer *red precipitate*, 2d trit. in two or three grain doses every two or three hours in the beginning, together with the above-named adjuvant; while in more chronic cases we administer *corrosive sublimate* 2d dil. The same author employs *Mercur. protojod.* in the 2d trit. in cases when it is doubtful whether they were treated previously with copious doses of mercury (if this is really the case, *Kali jodat.*¹, is the remedy).

When suppuration has already occurred within the chamber, Payr thinks he has observed very favorable effects from *mercury* (Hepar and Sulphur) in some cases when the quantity of pus was moderate, while the same remedies had no effect in other cases, without assignable cause.

7. CHOROIDITIS, RETINITIS, AMBLYOPIA.

Since the older observations on affections of the inner eye are expressed in rather vague terms, so that we are unable to diagnosticate them, we will sum them up in this place.

Pliny already mentions disturbances of vision in consequence of mercurial inunction. *Avicenna* speaks of blindness. Most authors mention amaurosis mercurialis, also more recently B. Halforth.

Dieterich describes the following condition as retinitis mercurialis: The patient feels a burning pressing pain in the depth of the eye; there is great photophobia, constant lachrymation, and various light colored spectra, such as sparks and fiery rays

flit before the vision of the patient; besides there are violent nocturnal boring pains in the frontal bone.

Now, since visions of colors are absent, or very rare in retinitis, while they are a constant symptom in choroiditis, together with the pains in the region of the trigeminal nerve, we consider these phenomena as relating to the choroid, while the retina is perhaps consecutively affected.

The following observations of Kussmaul, which are also confirmed by most authors, point to an affection of the optic nerve and the *retina*, particularly in the presence of exquisite sensibility to light: Two patients were unable to read fine print during mercurial tremor, but were able to do so after the latter had disappeared. The ophthalmoscope revealed no changes in the fundus of the eye. As both patients had trembling of the head, Kussmaul dares not decide whether the inability to fix the object of vision, or aniblyopia was the cause of their disturbance of vision. But he considers the latter explanation as the most plausible, because diminished power of vision is also to be observed in persons who suffer from erethism, but who have no trembling of the head.

Mercur. viv. has among its symptoms flaming visions (in No. 33.)

Mercur. sol. has a black spot before the eyes which seems to move on before him on looking down. Black spots before the eyes. Something seems to fly about before his face *resembling black insects or flies*. Everything looks green or black before her eyes, the room seems to be turning round, and she is obliged to lie down. He loses his sight completely for five minutes, and every half hour he has an attack, during which he is entirely deprived of vision for five minutes. Fiery spots above towards the clouds, especially in the afternoon. Fiery sparks before the eyes. *Mist before one or both eyes*. Amaurotic dimness before the left eye, which gradually increased and lasted for ten minutes. Amaurotic blindness of the left eye without pain for some minutes while walking in the open air. *Dimness of vision of both eyes*. Visual illusions; it seems to him as if a straw were suspended before both eyes.

Pointed things, like an awl, seem to have double points. The eyes are unable to bear the fire-light and daylight.

Corrosive sublimate has the following: Photophobia, diplopia, blindness, insensibility of pupil, contracted and dilated pupil.

The pains characteristic of *choroiditis* are peculiar to all mercurials, and are enumerated under the head of "Neuralgia." Fixed pains and photopsia are strongly marked symptoms of *Mercur. sol.*, and all are symptoms of choroiditis; while the *moûches volantes*, as well as the disturbance of vision in regard to colors, are peculiar to retinitis.

Payr says in regard to mercurials in choroiditis, that in this disease as well as in all inflammations threatening the destruction of the bulb, mercury is the most important remedy, and the most valuable one in the *Materia Medica*. Although this assertion may seem somewhat exaggerated from our point of view, *qu'importe!* we are indebted to it for most of our cures, while other remedies, as will be shown, do not always sustain the confidence placed in them. The following testimony will prove that this accusation is to be cautiously received, as in certain cases it may apply to mercury. Nevertheless we assign to it the first place among the remedies in this disease, not because we are prepossessed in its favor, but on account of its incisive constitutional effect, as well as its subjective symptoms relating to choroiditis. As in case of intense iritis we also prefer red precipitate to *Mercur. sol.*, and endeavor to increase its effect by contemporaneous application of mercurial ointment to the forehead.

If the disease is of syphilitic origin, as a matter of course the most extensive use of mercury is indicated. Mercury would likewise deserve preference before other remedies in the suppurative form of choroiditis.

Jahr furnishes the following indications for *mercury* under the head of "weakness of the eyes," having reference to diseases of the choroid and retina. Dimness of vision, as if looking through a mist; black dots, flying specks, flickering and sparks before the eyes. Momentary attacks of sudden blindness. Mobility of letters while reading. *Extreme sensitiveness of the eyes to fire-light and daylight*; cutting, piercing and press-

ing pains in the eyes, especially on exertion of the latter; (dilated, or even insensibility or irregularity of the pupil.)

Payr remarks upon retinitis as follows: "In the place of the results of provings of mercury, it is sufficient to adduce the fact established by the observation of older observers, that this remedy affects the entire eye, and that *Dieterich, Jäger, Basedow, Robertson* and *Travers* not only observed numerous instances of iritis mercurialis, but that also an analogous affection of the retina is mentioned by *Haffner, Dieterich, Kramer, Willis* and others, which affection is characterized by burning pressing pain deep in the eye with severe photophobia and photopsia, together with lachrymation. The same observers mention various cases of mercurial amaurosis. All of these stamp mercury as the most powerful remedy, according to the law of similars, in all inflammations of the bulb-membranes, and thus give it the most prominent place in inflammations of the retina, excepting perhaps the leucæmic form of that disease.

The preparations most commonly used by the old school are calomel and corrosive sublimate, the effects of which are generally increased by the well known inunction (*Schmierkur*) according to the directions of *Rust* and *Houvier*. We make use of *Mercur. sol., red precipitate* and *corrosive sublimate*, but most frequently of red precipitate, which we prefer to *Mercur. sol.* on account of its more incisive effect, replacing it by corrosive sublimate only in very obstinate cases. Two grain doses of the 2d dec. trit. given every two, three or four hours according to the severity of the case, and combined in dangerous cases with the frontal ointment (ung. cin. 25.00, Ext. Bellad. 0.18) were found to be sufficient in all cases, and we were never obliged to resort to the general inunction (*grosse Schmierkur*.)

We avoid the combination of mercury with chlorine on account of greater tendency to produce salivation, and we avoid it particularly in cases which threaten to demand a persistent administration of mercury. Instead of that we more commonly employ iodides of mercury, especially in cases of syphilitic origin, treated in the beginning with calomel or corrosive sublimate in a moderate degree.

It is true that the doses as above prescribed are not to be called weak, on which account they may not meet with mercy at the hands of some old Hahnemannians. Nevertheless we have been met by this assertion, that such treatment would be of no avail in severe cases. We are only able to reply that experience at the bedside has decided in our favor; and that we are accustomed to have our most sacred assurances enter only deaf ears. We shall, therefore, allow nothing to disturb us in adhering to that which we have learned to regard as good, and sanctioned by experience. For we are all aware that the key of the secret lies in the mode of preparation of our medicines, which more than counterbalances the surplus bulk of those of our antagonists.

At the close of the chapters on retinitis, *Payr* enumerates the remedies which correspond to the various forms of that disease, and here we meet everywhere with the above-named remedy, except in retinitis leucemia. It is used in the following conditions: (a) Retinitis idiopathica, produced first, by excessive exertion of the eye; second, by too bright an illumination of the field of vision; third, by exposure of the heated head to cold air; fourth, by injuries. (b) Retinitis nephritica s. albuminurica. (c) Retinitis syphilitica. (d) Retinitis hæmorrhagica, produced *e. g.*, first, by menstrual disturbances; second, abdominal plethora; third, habitual rush of blood to the head. *Payr* furthermore recommends the mercurials in *neuro-retinitis*, referring at the same time to general therapeutics of retinitis. In cases of *separation of the retina* he recommends particularly *corrosive sublimate*.

Hughes advises the use of *mercury* in small but frequent doses in subacute and chronic retinitis; also in *amaurosis* showing symptoms of retinal irritation, with severe photophobia and contraction of the pupil.

According to *Peters* Bellad. and *Mercur.* are the principal remedies in retinitis. In *hemorrhage* of the retina, *mercury* may be indicated after Acon. and Bellad. It is also indicated in *amaurosis* in consequence of adhesive inflammation of the sheath of the optic nerve; also in amaurosis after fracture of the skull, and after taking cold. In retinitis resulting from

Bright's disease, *corrosive sublimate* is mentioned by Peters as the chief remedy. He furthermore mentions mercury as a remedy in severe photophobia; when things look green; in *mouches volantes* of those suffering from disease of the liver; when paroxysms of blindness occur every half hour.

Yeldham assigns the first place to *Mercur. sol.* in *syphilitic retinitis*.

In our literature we find descriptions of several cases of amaurosis belonging to other diseases of the retina, cured by mercury.

In chronic cases of disease of the choroid and retina we would prefer *Mercur. viv.* to other preparations, because it is capable of producing such diseases.

Lastly, it remains for us to consider the diseases of the eyelids, the muscles of the eyes and of the lachrymal organs.

8. BLEPHAROADENITIS.

It is not only the general action of mercury upon the glandular system, but more particularly the irritation and inflammation of the glands of the eyelids that are caused by some of the mercurials, which point to the application of this drug in this disease, generally of syphilitic origin. Thus we find:

Under *Mercur. sol.*: The upper eyelid is thickened and red like a hordeolum.

Mercur. sub. corr.: The glandules of the eyes are inflamed.

Mercur. præc. rub.: Great improvement in an inflammation of the glands of the lids of many years standing; the disease has vanished entirely since that time (No. 6.)

Mercur. sol. seems to effect the Meibomian glands (Hordeolum); *corrosive sublimate* and *red precipitate* affect the glands of *Zeiss*, constituting *blepharoadenitis ciliaris*.

Hering in recommending *Mercur. sol.* in conjunctivitis seems also to have intended to suggest its application to blepharoadenitis, when he recommends the remedy in cases "when the eyelids * * * have ulcers upon their edges and scabby spots externally."

The clinical cases of *Böcker* showing the action of *corrosive sublimate* upon scrophulous ophthalmia, furnish the following

symptomatic image: The Meibomian glands are much inflamed (probably the glands of Zeiss were meant.)

Jahr mentions ulcerated tarsal edges as an indication for mercury.

Cl. Müller considers *Graphite* and *corrosive sublimate* as the chief remedies in blepharitis, and employs the latter in the 3d cent. trit. when the tarsal edges exhibit continuous redness and soreness, with scabs and ulcers upon the lids, with tendency to ectropium or entropium.

Attomyer recommends *mercury* in acute cases with much swelling and burning pain, especially in affections of the left lower lid, with violent inflammation of both lids, accompanied by burning pain and profuse secretion of tears and pus.

9. PARALYSIS AND SPASM OF THE MUSCLES OF THE EYE.

In these cases we are enabled to quote only *Payr* as our authority, who prescribes *Mercur. sol.* after *Acon.* in paralysis of the muscles of the eye, when there is much perspiration; when the rheumatic affection is extensive, and when there is vascular excitement. The same author mentions *Mercur.* as a remedy in tonic spasm of the lids, in consequence of spasms of the face; also blepharo-spasm accompanying the bilateral clonic spasm of the accessory nerve of Willis. The remedy is indicated when the disease is of rheumatic origin.

10. DACRYOCYSTITIS.

The following symptoms indicate inflammation of the tear-sac: *Mercur. sol.* when there is inflammatory swelling in the region of the lachrymal bone.

Cinnabar: Pain in the right lachrymal duct, around the eye to the temple. Piercing pains around the lachrymal duct of the upper lid, and numerous inflammatory phenomena of the inner canthus (see conjunctivitis.)

We would also use *Cinnabar* in inflammations of the lachrymal sac, whereby, perhaps, its perforation and consequent evil results might be avoided. Little is to be hoped from internal remedies in fully developed lachrymal fistula; nevertheless there are cases which have been cured by *Calc. carb.*, *Natr. mur.*, *Sulphur*, etc.

11. DISEASES OF THE ORGANS OF HEARING.

The symptoms relating to the diseases of the ear are as follows:

Mercur. viv.: Much roaring in the ears in several cases; ear-ache (No. 54) and cophosis are mentioned by many older writers.

Mercur. sol.: He is hardly able to hear, and still every sound reverberates much in the ear. The ears seem stuffed, with roaring in them. Roaring in the ears in the morning. Roaring and rushing sound in the ear, as if something stuck in the ear. Rushing sound in the ear as if something had been stuffed into it. Whirring sound before the ear as if fainting were to be anticipated. *Roaring* before the ear, synchronous with the pulse. Hardness of hearing in both ears. Roaring in the ears. Roaring before both ears while lying in bed. Roaring in the ears with deafness in both ears. Rushing sound before the left ear. Buzzing as if caused by wasps in the left ear. Fluttering before the left ear. Fluttering and crawling in the left ear. Ringing like the sound of high pitched glasses, especially evenings. All kinds of ringing before both ears for many days, worse evenings. Tearing pain deep in left ear at the beginning of measles. Pressing, piercing pain in the ear; the warmer she became in bed, the colder and moister her ear felt, at last as if she had ice in her ear. Stitches in the internal ear on stooping. The left ear is painful as if inflamed; the meatus is also painful as if inflamed. Violent pains in the ear as if something were pressing out. The ear feels as if externally and internally inflamed, partly with cramp-like, partly with piercing pains, and stopped up as if swollen. Jamming earache. Piercing and tearing pains in the ear. Piercing and burning pain deep in both ears, worse in the left. Both ears are internally sore and denuded of skin, worse in the right ear. Several times a day there was a feeling in the right and left ear as if cold water were running out, which comes suddenly and disappears after several minutes, meantime there is much itching in both ears. Moisture runs from both ears. In the morning blood runs from the left ear. Blood and offensive pus runs from the right ear, with tearing pain in the same.

Pus runs from both ears; in the outer portion of the right ear there is a boil which discharges pus from the ear on being touched, accompanied with pain in the entire right side of the head and face, which prevents her from lying on this side. Yellowish pus flows from the left ear. Liquid cerumen runs from both ears.

Mercur. sub. corr.: Piercing internally in left ear. Inflammation of ear passages; piercing pain in the same. Strong pulsation in the ears, particularly in the left. Pulsation of the arteries in the left ear. Piercing twitching pains in the right ear; blubbering sound in the left ear, with the pulse. Offensive purulent discharge from the ear; digging and piercing pain in left ear, of such violence as to cause him to cry and scream for three minutes; later there were admonitions of the same feeling. Roaring and crackling in the left ear, followed by pressing pain in the vertex, extending to the occipital bone, and thence to the left jaw, causing sponginess and swelling of the gums. The ears feel as if stuffed inside. Rushing as if caused by water in the ears.

Cinnabar: Pressing and jamming pain deep in the right ear, internally toward the nape of the neck, after sitting down, and passing off while sitting; with dizziness after two hours, in the forenoon. In half an hour he felt a sharp pain in the right supraorbital region streaming backwards and downwards towards the ear, and the side of the neck; the forehead is very hot; the pain is worse in the warm room and on moving the eyes and the scalp. Drawing sensation from the right inner canthus of the eye, across the jaw to the ear. Violent itching in the right ear, and after using the ear-spoon there is a pain deep in the ear on the ninth day. Rush of blood to the occiput, accompanied by violent itching and heat in both ears; behind the left ear there appear three hard swellings, one of the size of a small shot, the second as large as a buck-shot and the third still larger. Pain and feeling of fulness in the meatus of the left ear for a short time. At ten A.M. there was a feeling of water in the left ear which soon vanished. Violent itching in the left ear from the first to the fourth day. Scabby eruption in the right external ear, between the helix and anti-

helix, on the fourth day. Pains in both ears lasting five minutes. Noises in the ears after eating. Roaring in the ears with swelling of the face.

Mercury is recommended in affections of the ear by the following writers:

Kafka mentions it in *catarrhal otorrhœa* in these words: "According to our experiences collected with reference to this subject, we have the choice between *Mercur.*, *Hepar*, *Cale. sulph.*, *Lycop.*, and *Arsen.* If the otorrhœa is accompanied by catarrh of the eyes or nose, swelling of glands, eczema of face or scalp, or when we see only a portion of these symptoms, or when the excoriating discharge from the ear is alone present, we resort to one of the above remedies in two doses daily, and we are convinced that each of these remedies is capable of relieving the entire complex of symptoms in a space of time varying from three to six weeks without the necessity of resorting to any external application."

The more simple the scrofulous and excoriating discharge from the ears appears, so much the more certain will be the effect of the above-named remedies, provided the patient observes the proper diet and regimen. The excoriating property of the secretion grows less, the discharge gradually assumes a laudable appearance, and finally becomes watery. In obstinate cases he makes use of injections of corrosive sublimate (one-quarter grain to three ounces of water), alum, tannin and sulphate of zinc.

Bahr says (after treating of two chief remedies *Pulsat.* and *Bellad.*), that in otitis interna, we have also to consider the remedies which come into play when the disease becomes purulent; here, again, *mercury* takes the first rank. As a matter of course it will have to be employed in cases where otitis is of syphilitic origin, provided the patient has not already consumed mercury in excess; to ordinary cases it is completely adapted.

In otitis externa he recommends *mercury* when there is formation of abscesses.

Hughes promises good effects of *Mercur. sol.* (*Hepar* and Nitric acid) in cases of otorrhœa dependent on chronic inflam-

mation of the lining of the meatus externus and of the membrana tympani (*otitis externa*). The *chlorides of mercury* or *corrosive sublimate* (together with Pulsat., Iodine, Iodide of potash), are applicable in those forms of otorrhœa which present themselves as a symptom of the *chronic catarrh of the middle ear*, as well as chronic inflammation of the middle ear. He also recommends *mercury* in cases of *rigidity* and *hypertrophy of the mucous membrane*, as found in scrofulous children and advanced age. *Mercur. corr. subl.* in caries of the mastoid process (with Aurum); in deafness after taking cold, when the disorder has become chronic.

Goullon mentions *mercury* as chief remedy in otitis catarrhalis externa of scrofulous persons (Calc. carb. as principal remedy).

The same author says in regard to therapeutics of scrofulous diseases of the ear (external and internal otitis, periostitis of the middle ear and of the external meatus, and inflammation of the tympanum): "We might mention more than one unfortunate case where polypous growths, profuse and putrid discharge, affection of the constitution in general, and a considerable degree of deafness followed allopathic treatment, and where nevertheless Calc. carb., Silic. and *mercury* (the former and the later in their various preparations), were amply sufficient to conquer the pathological condition.

Jahr regards a dose of *mercury* rarely necessary after Pulsat. in external otitis. In cases of internal otitis in the depth of the cavity of the tympanum, in the presence of dangerous symptoms such as violent headache, cramps in the face, complete deafness and roaring in the ears (Hepar, Laches.), *mercury* may succeed in accomplishing the discharge of pus through the external meatus or eustachian tube and fauces. On the other hand Jahr asserts that he has always found Bellad. and *mercury* quite sufficient in all other inflammations of the inner parts of the ear, and that he rarely had to resort to Bryonia as an intercurrent remedy when indicated by violent headache. He recommends *mercury* in *rheumatic headache*, when the ear discharges moisture, with stitches deep in the internal parts and burning in external parts, especially when accompanied by

perspiration without relief. In general the following symptoms demand the use of mercury: Boring pains, tearing, jamming; feeling of *coldness in the internal* and burning in the external ear; nocturnal aggravations; when the whole is caused by taking cold; when there is offensive discharge from the ear. *Difficulty of hearing* demands *mercury*, when there is at the same time discharge from the ear; when it appears as accompaniment or consequence of coryza; when it remains after measles, or is caused by hypertrophied tonsils, and when the ears seem to be stuffed. In hemorrhage from the ear, Jahr mentions *mercury* and Pulsat. as prime remedies.

Hering finds *mercury* indicated in pains in the ear, deep seated, tearing, pressing and burning; when the pain extends into the cheek or burns externally and feels cold inside, accompanied with violent jamming and pinching pains, especially when the ear discharges moisture.

Alther observed the following cases to be cured with *mercury*: Catarrhal deafness from colds; roaring in the left ear with diminished hearing; hardness of hearing which is relieved by blowing the nose; stuffed feeling of the right ear, with ringing; enlarged tonsils closing the eustachian tube, and causing diminution of hearing.

Reutsch reports a case of profuse, offensive discharge after measles, where the external meatus was closed by polypi of soft consistency and easily bleeding. After using *Mercur. sol.*³ internally and 1st externally, the polypus dropped off, with perceptible diminution of the bad odor and discharge.

According to *Lobethal* the simple catarrhal otorrhœa of scrofulous children accompanied with loss of hearing, yields most rapidly to Calomel in the 2d or 3d trit., given at reasonably short intervals.

If we glance at the pathogenesis of mercury and the cases in which it has been prescribed, we find that it is principally the chronic catarrh of the middle ear, when it extends from the pharynx through the eustachian tube to the ear, which calls for *mercury*.

Halfort says that in mercurial angina the eustachian tube is not infrequently affected and hearing impaired.

The affections of the ear which are next in importance, are inflammation of the external ear; acute inflammation of the tympanum; acute catarrh, and chronic inflammation of the middle ear. The etiological causes which point to mercury are cold, rheumatism, scrofula, tuberculosis and syphilis. Acute inflammation of the middle ear is connected at the outset with cerebral symptoms of such violence, that mercury is out of the question at this stage, but as soon as pus makes its appearance the time for the administration of that medicine has arrived. *Mercury* and Calc. carb., etc., will be indicated when deafness appears as a result of chronic inflammation of the fauces without inflammatory or catarrhal affection of the eustachian tube, but in consequence of those pathological processes leading to hypertrophy of the mucous membrane of the velum, tonsils and lymphatic glands of the fossa of Rosenmüller, and even of the mucous lining of the posterior cavity of the nose in chronic coryza.

We are unable to decide whether the *deafness* caused by *mercury* (cophosis) is of a nervous character, or whether it is the result of swelling and hypertrophy of the mucous membrane of the middle ear; occlusion of the tuba or hypertrophy of the mucous lining of the fauces; hence we cannot recommend that remedy in *nervous deafness*. If we were justified in judging by analogy, we might consider it as a direct affection of the acoustic nerve, because among serious lesions of the brain we also observe amaurosis to follow mercurial poisoning, and may attribute the latter to a direct affection of the optic nerve. The following observation of *Fulck* indicates an affection of the acoustic nerve: Great sensitiveness to sounds; paralysis of the nerves of hearing with deafness, may originate suddenly as well as gradually, and they are very persistent when once established.

Hulfort says that there is great sensitiveness to noise; the sound of wagons in the street causes the patient to shudder.

The results of provings of *Cinnabar* may disappoint us in our expectations, since they present very few symptoms relating to the ear. Nevertheless this preparation might prove useful in scrofulous affections of the ear in preference to other remedies.

Diseases of the concha, caries of the petrous portion, etc., are discussed in the chapters on skin, bones, etc.

12. DISEASES OF THE ORGANS OF DIGESTION.

a. Cavity of the Mouth.

1. STOMATITIS.

In summing up the accounts of mercurial stomatitis of various authors, we obtain the following image of the same: The mucous membrane of the mouth at first shows a blueish-red color, while the teeth as well as the edges of the gums are coated with a yellowish cheesy mass. The gums retract from the teeth and bleed easily; while the teeth become loosened, shake on being touched and sometimes fall out. The salivary and lymphatic glands, as well as the parotid and the cheeks are swollen, together with the tongue, and are painful. The latter shows the imprint of the teeth along its edges, and is sometimes swollen to such an extent as to fill the cavity of the mouth, obliging the patient to keep his mouth open to afford more room. Burning pain and fetid odor soon appear. The secretion of saliva is increased, so that it runs from the mouth continually. The saliva is viscid, stringy, corroding; its taste is sometimes sour or salty, at others sweetish and flat, or bitter, foul, or metallic. From two to sixteen pounds may be secreted in twenty-four hours. This state is accompanied with febrile symptoms; the pulse is rapid, soft, feeble and small; the skin is at first dry, later it is wilted; the urine is red; the head is dull and heavy; the nose stuffed and the debility is very great. The teeth are covered with thick, fetid, cheesy coating, which corrodes the enamel; on which account the teeth often turn black and then always remain so.

On the sides of the mucous membrane of the tongue and cheeks, where it borders upon the teeth, we observe shallow and very painful ulcers which begin in the following manner: The epithelium of the mucous membrane separates; while the tissue underneath is swollen, red and sensitive. Sooner or later the epithelium is destroyed in the diseased place; while

the subjacent tissue secretes a thin acrid fluid and begins to be very painful. The ulcer which is thus formed extends more laterally than deeply, and represents an irregular, extremely sensitive, easily bleeding cavity, of whitish dirty appearance, with a livid border and without elevated edges. The offensive secretions always remain acrid and thin when the ulcer extends. Sometimes one ulcer will begin to heal spontaneously from its centre, but only to make room for a new one near by. Frequently several adjacent ulcers will become confluent, and will then represent a large, irregular confluent cavity. They extend from the lips and gums to the palate. (Syphilitic ulcers which are easily mistaken for mercurial ulcers are more confined to the palate; they have sharply defined and elevated edges, are round and cup-like in shape; have lardaceous base and copper colored areola, and remain with great tenacity in the same place.) In severe cases we may meet with gangrenous destruction of the soft parts, and even with necrosis of the alveoli and maxillary bones, accompanied by hectic fever. Frequently the disease results in the formation of diphtheritic products, consisting in a coating of the free edges of the gums; in pseudo-membranous patches on the inside of the cheeks, palati, corners of the mouth, lips, edges of the tongue, velum palati and tonsils. In these places the coating remains for a long time in the form of a gray mass of exudation, or it afterwards deteriorates and gives rise to the formation of ulcers in the fauces; suppuration of the tonsils even with cancerous appearance and perforation of the soft palate (Hermann.)

As we meet with these phenomena as effects of all mercurials, we omit the repetition of each particular one, and confine ourselves to the statement that *Calomel* produces salivation more rapidly than the rest.

Since salivation may be absent notwithstanding the presence of considerable ulceration, the former is to be attributed to a direct irritation of the salivary glands by mercury. But as the parotid and other salivary glands exhibit little or no pathological change excepting a little serous exudation in their neighborhood, the irritation causing the salivation must be of nervous character, and in fact the viscosity of the saliva indi-

cates an irritation of the sympathetic. After cutting the glandular nerves, the copiously secreted saliva is thin and fluid; hence the salivation depends upon irritation and not upon paralysis of the sympathetic.

Since mercury produces the above-named form of stomatitis, so in various stages of development in different individuals *mercury* is the chief remedy in stomatitis catarrhalis, crouposa, diphtheritica, aphthosa and in stomacace.

In stomatitis catarrhalis *Kafka* prescribes *Mercur. sol.*³ when the cavity of the mouth is pale red, when the temperature of the mouth is less than with *Bellad.*, when the sensitiveness is less, but when the secretion of saliva is increased; when the inflammation extends to the tonsils, and when the odor of the mouth is very disagreeable. This remedy is also applicable in difficult dentition when the same symptoms are present and subject to aggravations. When there are single *aphthous ulcers* in the oval cavity; when the pain has been allayed by *Bellad.*, and when salivation is excessive, *Kafka* gives *Mercur. sol.* 2d or 3d. When aphthæ resist the application of Borax, *Bellad.*, Sulph. ac. and Hepar, he employs *corrosive sublimate* 3d to 6th internally and also as a gargle (one-quarter of a grain to one ounce of water). When aphthæ are combined with intestinal catarrh (diarrhœa?), with violent colic, and when the secretion is acrid and corroding, he uses *Mercur. sol.*³

Buhr designates *Mercur. sol.* as a specific in certain forms of diseases of the mouth just as *Bellad.* is a specific for others. After describing mercurial stomatitis he continues: "There certainly is no medicine capable of producing so perfect an image of intense inflammation of oral cavity as mercury. The similitude is so great that in a given case, without exact knowledge of the cause, it is difficult to describe whether we have before us a case of simple or mercurial stomatitis. After these remarks it is unnecessary to mention further indications for mercury. It is indicated in all degrees of the evil, also in the formation of ulcers of the mucous membrane and in aphthæ. It is more questionable whether it is also applicable in chronic catarrh of the fauces. *Guernsey* recommends *mercury* in aph-

the with severe salivation, or at least greater secretion of fluids than necessary. Also in ulcers of the gums.

In speaking of aphthæ, *Hughes* considers *Borax* as a chief remedy, but mentions *mercury* as the second homœopathic remedy. *Ulcers of the mouth*, according to the latter author, are rapidly to be cured by a few doses of mercury, which may be followed if necessary by *Nitr. ac.*, if the ulcers are of recent origin.

In *catarrhal stomatitis* *Goullon* recommends *mercury* when there is salivation. In regard to stomacace he quotes *Alfred Vogels* words: "Calomel produces an affection of the mouth in children, which is in no respect different from stomacace, unless we choose to consider the absence of contagion in mercurial stomacace as a diagnostic mark." These facts together with the other fact that mercury is unconditionally demanded in stomacace, we find another proof of the correctness of the law of similars.

When *Acon.* and *Apis* are ineffectual in *syphilitic stomatitis*, *Yeldham* uses *corrosive sublimate* (*Bellad.* and *Lachesis.*)

Jahr furnishes the following indications for mercury in *stomatitis* and *stomacace*: "*Red spongy, retreating, ulcerating and easily bleeding gums with burning and pain at night*, accompanied by soreness to the touch, *looseness of the teeth, inflammation, soreness and ulceration* of the tongue and cavity of the mouth, which are occasionally *covered with aphthæ*. Offensive carrion-like odor of the mouth and ulcers; excessive *discharge of offensive*, sometimes *bloody saliva*, with ulceration of the orifices of the salivary ducts; the tongue is swollen, stiff, hard and moist and covered with white slime. Pallor and rigors are present; burning stools." He furthermore remarks: "In cases of aphthæ of children mercury is and will be the chief remedy, even if these do not only occupy the mouth, but also the stomach and intestinal mucous membrane." (When there is no improvement he gives *Sulphur* and *Calc. carb.* after five or six days). "I have sometimes witnessed very good results from *Borax* and *Sulph. ac.*, but never equal to those obtained from *mercury*, *Sulphur* and *Calcareæ*." He also recommends *mercury* in small aphthous ulcers of children during dentition and also

in adults. In stomacace of children he uses mercury with excellent effect, and in adults when the disease is of a rheumatic or scorbutic origin.

Knorre found *mercury* useful in cases of little ulcers of the tongue and inside of the lips and cheeks; when these ulcers exhibited a lardaceous base and red inflamed edges. Furthermore he gave it (in the 3d trit.) in the following cases: After preceding febrile excitement, with catarrh or gastric symptoms, there are to be observed small round single vesicles upon the reddened mucous lining of the mouth; these soon break and form shallow ulcers of variable size with reddened edges, and whitish or yellowish base; they burn and are painful, bleed easily and interfere with suckling. At the same time there is pallor of the face; bloated cheeks; swelling of glands; great salivation; offensive breath, diarrhœa; intertrigo and emaciation.

Gerson recommends *Mercur. viv.* in syphilitic ulcers of the mouth, which he describes as follows: Upon the mucous membrane of the mouth, fauces and nose there arise isolated shallow nodules, which change into round ulcers with hard edges and lardaceous base: that prickle slightly and burn, and disappear after a short time to reappear again in neighboring parts. When they appear upon the lips or alæ of the nose, a hardness can be felt extending deeply into the tissues surrounding the ulcer. These ulcers depress the mind of the patient exceedingly, because they cause constant annoyance by the fear they arouse of a renewed eruption of syphilis. In cases of this kind the *Mercur. bin.* is a specific. There is a syphiloid disease of peculiar kind, which occurs exclusively upon the lips and buccal lining, and which is exceedingly obstinate with regard to the effects of medicines. This form of disease becomes manifest in the form of circular, very shallow, spots, which shed their epithelium and secrete a whitish exudation like the skin of thickened cream that changes frequently. These spots are very sensitive, but do not bleed like mercurial ulcers, from which they are to be distinguished by hardness at their base. In cases of this kind also *Mercur. bin.* is the specific.

Hartmann says: *Mercury* is particularly indicated in con-

fluent *aphthæ* with much salivation, and also in cases where syphilitic symptoms are unmistakable. In the later case the *aphthæ* spread more rapidly, and the tonsils, fauces and larynx are effected; the *aphthæ* penetrate more deeply, they begin to ulcerate and diffuse an offensive odor; the voice grows hoarse and the child becomes emaciated, and a hectic fever threatens to wear out its life.

Hirsch recommends *Mercur.* in croupous stomatitis.

Esculier also cured cases of *mercurial stomatitis* with *Mercur. sol*¹², and *Mercur. nitr*¹². In acute cases, especially of scrofulous children, *Calomel* deserves our preference, but in chronic cases, especially of scorbutic or cachectic individuals, *Mercur. viv.* is the remedy. *Red precipitate* or *corrosive sublimate* are the principal remedies in syphilis.

Stomatitis crouposa is so often produced by mercury, as we have seen by the above cases of poisoning, that the administration of this remedy according to the law of similars is justified in this form of disease when it appears idiopathically.

2. GLOSSITIS.

In many of our histories of cases we find, under *Mercur. viv.*, inflammation or ulcers of the tongue; in two individuals on board the ship "Triumph" gangrene of the tongue occurred; in No. 43 we meet with a violent hemorrhage from this organ.

Mercur. sol. has the following tongue symptoms indicating local disease: Great swelling of the tongue; swelling and white coating of the tongue; tongue much swollen and coated white; pains like the prickling of a needle in the point of the tongue; on the surface of the tongue a longitudinal groove with pains in it as of pins; painful sensation in the tongue as if it were cracked with burning pain; edge of the swollen tongue extremely painful and ulcerated; tongue swollen, hollowed out, ulcerating; the tongue is swollen and so soft at the edges as to show the impression of the teeth, with indentations which appear ulcerated; at the hyoid bone, the tongue feels sore and stiff on the right side.

Mercur. corr. subl.: The tongue much swollen and highly inflamed; tongue rigid and swollen; tongue white, it fills the

whole cavity of the mouth; tongue and tonsils swollen and covered with a thick white crust (Borke); tongue and lips swollen; tongue much swollen, of a pale yellow color, protruding beyond the no less tumified and pale yellow lips; yellowish saliva streams from the open mouth which is prevented from closing by the swelling of the tongue; the posterior part or the tongue and pharynx show a blue discoloration, they are easily broken down and gangrenous; a piece, no larger than a pea, becomes separated from the tongue.

Mercur. præcip. rub.: The tongue is so much enlarged that it completely fills the mouth, and appears to be perforated in several places (No. 2); papillæ of the tongue much swollen (No. 5).

Mercur. dulcis.: Tongue and gums swollen (8); gums, palate and tongue thickly studded with aphthæ (8); all the inner portions of the mouth swell considerably (9); salivary glands and tongue much swollen (11); the tongue was swelled to such a degree that there was danger of suffocation.

Mercur. cyanid.: Vesicles at the left edge of the tongue which is much coated; the lips, tongue and lining membrane of the cheeks are thickly covered with great numbers of small ulcers under a grayish white coating; tongue swollen.

Kafka saw improvement follow much more speedily after *Bellad.* than after *Mercurius*. He recommends that *Bellad.* be followed by *Mercur.* where it is desirable to produce a rapid breaking down and absorption of exudations on the tongue after the subsidence of violent inflammatory processes.

Bæhr on the other hand says: In the majority of cases of glossitis, more especially where the disease occurs idiopathically, *Mercur.* is the most certain and appropriate remedy.

Hartmann adds that it should be given in the 2d or 3d trit., and that he has seen in cases not too far advanced a marked improvement follow its use within a few hours. It must not be forgotten that in those cases also, which are of syphilitic origin, mercury is the proper remedy, but here it is advisable to choose one of the more powerful preparations, such as the *corrosive sublimate* or the *white precipitate*. Where corrosive

substances or burns are the causes of the inflammation, Mercur. will remain ineffectual.

Gerhardt recommends Mercur. in violent inflammation with salivation, suppuration and the formation of ulcers.

Hughes administers Mercur. in alternation with Bellad. in simple, uncomplicated forms of glossitis; in syphilitic ulcerations Mercur. or Nitric acid.

According to *Jahr* mercury is without doubt the most serviceable remedy. For indurations of the tongue it may also be used with advantage. (This is warranted by the symptom 301: "The anterior half of the tongue is so hard that tapping it with the finger nail produces a clicking sound; the part is also perfectly dry.")

Gerson has observed permanent benefit from the persistent use of *red precipitate* in those cases of syphilitic, nodular deposits in the parenchyma of the tongue, which have the appearance of schirrous nodes, and are accompanied by intense, burning pains.

Mercury should also be tried in *cancer of the tongue*, as its pathogenesis has in addition to the incipient induration, the ulcerations and symptoms of general cachexia.

3. DISEASES OF THE TEETH.

The destructive effect of Mercur. upon the teeth is sufficiently known. The number of those who have lost their teeth in consequence of the abuse of mercurial preparation is not to be told; and the cases are scarcely less numerous in which a minute cavity has been filled with a mercurial amalgam, followed in a very few years, or perhaps months, by a black discoloration of the whole crown, the dropping out of the filling and a crumbling of the whole tooth, which without the filling would have remained serviceable for many years.

In workers in quicksilver we find the teeth not only loosened and falling out in consequence of atrophy of the gums, but they are also black, defective and carious, and the subjects are often tortured by violent toothache. After mercurial inunctions we find soreness and swelling of the gums (No. 2); swelling of the gums (No. 16). *Kussmaul* mentions under the

head of *Algæsthesia mercurialis*: 1. Toothache; 2. Tearing pains proceeding from the teeth, radiating over the face, temples and scalp in connection with carious teeth and inflammation of the nerve-pulp.

Mercur. sol. has the following symptoms of the gums and teeth: The gums are painful to the touch and on chewing more especially of solid food; itching of the gums; the gums shrink away from the teeth; tearing pains in different parts of the gums; gums sore and swollen; gums swollen and separated from the teeth; the upper edge of the gums is ragged, projecting, white and ulcerated; ulcerating gums; painful, swollen gums; swelling of the gums at night, better during the day; swelling of the gums every night; transient swelling of the gums in the early morning; every night, when he is on the point of going to sleep, burning pain in the gums which wakes him up; burning, throbbing pain in the gums increasing in the afternoon, soothed by lying down, and disappearing at night; the greatly swollen and painful gums are retracted from the teeth; fine painful stitches almost all day long and on rising in the morning, felt in the gums which are spongy, retracted from the teeth and bleeding, and in the roots of the denuded teeth; pain mitigated somewhat in the evening and by smoking tobacco. The gums which project from the teeth are discolored and white at the edges; painless swelling of the gums for several days; bleeding of the gums from the least touch during fifty-six days; intense pains in the teeth, aggravated by eating; the teeth begin to be loose; pains in the teeth as if they were decayed, especially after eating; the teeth become grayish-black, or black; sensation while moving the mouth as if the teeth were loose, especially in the lower incisors; sensation as if all the teeth were loose; looseness of the teeth, which are painful on being touched by the tongue; weakness in the teeth; front teeth feel as if they had been dislocated; pain in the incisors; pain in the front teeth; sharp pains in the front teeth on drawing air into the mouth, or from warm or cold drinks, but the pains continue only during these acts; toothache as if the teeth were set on edge; *violent toothache during the night, followed after it had subsided, by a*

severe chill through the whole body; pains in the roots of all the teeth throughout the whole day; tearing toothache after midnight, particularly towards morning; tearing toothache shooting to the ears, worse at night, he is unable to remain in bed in consequence, and is forced to sit up all night; jumping toothache, especially at night; toothache with pulse-like jerkings from the lower teeth to the ear and from the upper jaw to the head, with painfulness of the gums from 9 o'clock P.M., relieved only by lying down and falling asleep; toothache like violent stitches; excruciating stitches in the teeth in the evening.

Mercur. corr. subl.: A burning pain in the gums and mouth; loosening and tumefaction of the gums; swelling, soreness and bleeding of the gums; swelling of the gums, with false membrane, followed by gangrene and copious hemorrhages; bleeding of the gums and drawing pains in the teeth; swelling of the gums about the molar teeth of the right side; the gums around the base molars begin to swell, with burning pains; blackish discoloration of the teeth; the gums are spongy and the teeth loose; the teeth loosen and grow painful; teeth which are perfectly sound grow loose and six of them fall out; nocturnal toothache jumping and throbbing; tearing, burning pain from the teeth of the upper jaw to the eye; tearing toothache after warmth and catching cold (catarrh); tearing stitches in one of the posterior molars passing to the ear; pressure with fine stitches at the roots of the teeth, rising up between the teeth, where it is lost; the sleep at night is disturbed by toothache; pain in the lower jaw; redness, pain and hardness of cheeks are mentioned in the records of some cases of poisoning.

Calomel.: Swollen gums (No. 8); toothache on the left side with swelling of the lower jaw which afterwards became carious and exfoliated (No. 9); excrescences and bleeding of the gums (No. 11.)

Mercur. præc. rub.: Gums swollen, inflamed (No. 2); gums quite destroyed about the front teeth (No. 9); violent burning in the gums (No. 3.)

Mercur. cyanid.: The gums swollen and covered with a coat-

ing (schicht), the edges of the gums show a violet colored border.

Cinnabaris: Pain in the molars of the right side; painful sensitiveness in the teeth; on the eleventh day profuse hemorrhage from the right upper incisor.

As the ulcers of the gums have already been discussed in treating of stomatitis, and as bleeding of the gums will find its place under the head of scurvy, necrosis of the jaw coming under diseases of the bones, we have only to consider here the subjects of toothache and ulceration of the teeth.

Kafka, while he refers to some good repertory for the treatment of toothache, recommends in inflammation of the gums (parulis): Mercur. sol.³ where the following signs exist. The parulis arises from a preceding or still present tearing or drawing toothache, extending to one or the other ear, coming on from cold draught of air, or in damp, cold weather, most frequently setting in on getting warm in bed and growing so severe at night that the patient is forced to leave his bed; the inflamed gums are deep red and detached from the teeth: the patient feels as if the teeth were loose and shaking; the swelling of the cheeks is not excessively hot, it is soft from serous infiltration which extends to the eyelids. When, after artificial or spontaneous opening of the abscess, a hard swelling remains with great sensitiveness to pressure, he also gives Mercur. sol.³

Bahr says: Mercur. is the leading remedy here, as no other produces such constant symptoms in the teeth as this. Mercury is especially suitable for the suffering caused by carious teeth. The pains are of a piercing, tearing or boring character; are not confined to their point of origin, but radiate to the ear, the forehead and even to the entire scalp. They are aggravated by the warmth of the bed, by the recumbent position, by eating and drinking, and are mitigated momentarily by the application of cold water. Their constant period of exacerbation is from late in the evening until midnight when they may become unbearably severe, but do not wholly subside even after this time. The application of warmth to the tooth increases the pain, while when applied to the cheek it not unfre-

quently relieves. External cold, draughts of air, etc., are particularly apt to cause an aggravation. The pains are attended with an evident inflammation of all the surrounding soft parts; the gums are reddened, swollen, sensitive; the glands hyperæmic; the secretion of saliva increased; the general condition feverish, with a marked tendency to perspiration which produces no relief, and an anxious restlessness necessitating a frequent change of position. When the pain is of long standing it is followed by loosening of the gums which become detached from the teeth, disposed to bleed easily, and show ulcerated spots particularly at the edges. Furthermore, all the symptoms of catarrh of the mouth; formation of abscesses at the roots of the teeth. Extensive experience teaches that *Mercur. sol.* is the most efficacious preparation, and next in order comes the *metallic quicksilver*.

Hughes, in his manual of Pharmacodynamics, says under mercury, that in regard to the teeth he would wish very much to see a thorough and unbiased study of the effects of quicksilver, and asks: Does it attack these directly, producing actual caries, or do the teeth loosen and fall out in consequence of the degeneration of the gums without becoming unsound? He declares himself unable in the present state of his knowledge to form a decided opinion in the matter, and further on, he observes once more that in the present uncertainty of our knowledge concerning the effects of mercury upon the teeth, it would be premature to determine its precise position in the treatment of the diseases of these organs. Without well defined indications, however, it is largely used in affections of the teeth.

The question here raised by *Hughes* is answered by the observations on quicksilver workers, especially mirror makers, where we see both falling out of sound teeth in consequence of atrophy of the gums, and caries of these organs. The provings of *Mercur. sol.* supply the general accompaniments which serve to indicate this remedy, and it has performed brilliant cures when administered with reference to its particular characteristics.

Hughes recommends that *Mercur.* be tried in parulis when,

as is commonly the case, a diseased tooth is the cause of the trouble and extraction undesirable, but he looks for better results from the use of Phosphorus.

Jahr gives mercury in tearing, piercing pains in carious teeth, or in the roots of the teeth, spreading over the entire affected side of the head and face to the ears, accompanied by painful swelling of the cheek or the submaxillary gland, and salivation; the pains come on or grow worse in the evening or *at night after getting warm in bed*, when they become unbearable; renewal of the pains from cool or moist air while eating, or from taking either hot or cold food or drink; the teeth are on edge, loose and feel as if they were too long; swollen, whitish, ulcerated and colorless gums, bleeding easily, with itching and burning and painful soreness to the touch; night sweats, vertigo, rheumatic pains in the extremities; morose, irritable moods, or great disposition to weep; chilliness with redness of the cheeks, etc.

As *Bähr* and *Jahr* have already given all the indications for mercury in toothache, it would be superfluous to cite other authors. We will only mention the great remedial power of mercury in cases of neuralgia of the branches of the trigeminus which supply the teeth of the upper jaw, when the affection appears with the above named symptoms, while it resists allopathic treatment and continues to rage even after extraction of the sound teeth.

In conclusion, we will mention that in parulis, under the emotions enumerated, *Mercur. viv.*, according to others *Mercur. corr. subl.*, proves more efficacious than the soluble preparation, while the latter is most appropriate in toothache, even when of a neuralgic character.

4. Noma.

Mercur. viv.—*Dieterich* quotes the following case reported by *Erdmann*: A barometer maker threw a paper bag, through which mercury had been filtered in the usual way, into the hot stove. The fumes arising from this caused active pytalism with swelling of the mouth and fauces in his wife; while in his infant lying in the cradle it produced so great a destruction

of the parts that both cheeks sloughed away, exposing the jaws with the teeth and leaving only small portions of both the upper and lower lips in the middle line. In this condition of misery the child died in the hospital at Dresden.

Rust, too, saw noma follow mercurial inunctions in a woman æt. 63 (compare inunction of *Mercur. viv.* No. 3.)

Two cases of gangrene of the cheeks occurred on board the ship "Triumph."

Calomel.—In his report of a case of noma (10), *Knorre* says that Calomel not unfrequently causes this disease.

The symptom 223 of *Mercur. sol.* is as follows: "Marked swelling of the upper lip and of the lower part of the cheek, which was soft but very red; holes an inch deep (as if they had been bored out), appeared at this part, lined with a grayish-yellow matter, from which a mere watery yellow moisture exuded; they were somewhat fetid and bled on being touched, but only at the edges."

Bahr after recommending *Secale cornutum* against this disease, mentions *Mercur. sub.* among the remedies likely to be of service, while *Kafka* makes no mention whatever of the mercurial preparation.

Hughes observes that the well known tendency of quicksilver to produce this grave disease will justify us in using one of its salts at least for the incipient phenomena. The only case which had come under his own eye followed an attack of measles and yielded to *Mercur. sol.* and Nitric acid. He recommends that Arsenic be held in reserve, etc.

Jahr does not mention the mercurials.

Aegidi was successful in treating several cases of noma with one-fifteenth to one-fifth of a grain of corrosive sublimate after having failed to arrest the disease with other homœopathic remedies.

5. PAROTITIS.

Halfort remarks that pains in the parotid and other salivary glands and swellings of the same precede the mercurial salivation, with the exception of some serous infiltration, however, around these glands they show no structural changes.

Kussmaul observed occasionally in mirror makers induration of the parotid.

Other authors, as *Dieterich*, *Falk*, etc., mention swelling of the salivary glands.

In the experiments of *Overbeck* we find the salivary glands swollen in several of the animals, concerning which the author remarks as follows: There can be no doubt that the inflammation of the salivary glands and oral mucosa is caused by the elimination of the mercury by these structures. The salivary glands were found in the autopsy to be much swollen and congested, but a plastic exudation could nowhere be found in them.

In our cases of poisoning with *Mercur. viv.* we find swelling of the salivary glands in Nos. 2, 15, 25, 49, 50, 51.

Mercur. sol. has the following symptoms: Pain and swelling of the salivary glands; swelling of the cervical and parotid glands to such a degree that the jaws are closed, and cannot be moved on account of the pain; swelling and burning, preservative pain in the parotid, passing away from exposure to cold and returning from warmth; when he touched them with any woolen material he was invariably seized with a desire to cough.

Under *Mercur. sub.* we find in No. 34, swelling of the salivary glands. *Taylor* found the salivary glands unusually prominent. In No. 11: Swelling of the salivary glands after *Calomel*.

In *Kopeler's* case of poisoning by *Mercur. cyanid.* the salivary glands were also swollen.

Kafka says: After the violence of the inflammation is broken and the swelling becomes less hot and red, hard and painful, we discontinue the use of the *Bellad.* and give *Mercur. sol.*³, as the remedy corresponds with the retrogressive metamorphosis of a violent inflammation. We administer the same remedy when the primary parotitis exists with slight febrile symptoms, and when the local affection develops slowly without violent pain or redness. In such cases *Mercur.* causes a speedy absorption. Under these conditions we rarely find suppuration as these subacute forms of parotitis without active inflammatory

phenomena, show but little disposition to form abscesses. In secondary forms of this kind we have almost invariably failed to produce any beneficial change with *Mercur.*"

Behr declares in the following words mercury to be the most important remedy: "It is well known how specifically it affects the salivary glands. It not only increases their secretion, but also gives rise in them to inflammatory processes having a marked tendency to end in suppuration, as may be seen often in heroic courses of mercurial treatment. On the other hand there is no remedy which will prevent suppuration with so much certainty as mercury.

Hughes recommends mercury in mumps; in the parotitis of scarlet fever and typhoid he prefers the salts of iodine and quicksilver. Concerning the effects of mercury upon the salivary glands he says that while this poison destroys the mucous membrane of the mouth, it merely stimulates the salivary glands, causing them to pour out their secretion copiously. *Orfila* declares that no actual inflammation exists in these glands in mercurial salivation, but merely a serous infiltration of the surrounding cellular tissue. Occasionally, however, (as in a case reported by Prof. *Taylor*), the glands enlarge and grow softer; under these circumstances the salivary secretion is diminished.

Jahr says: When I can treat these cases from the outset, and if the disease is not symptomatic; when the swelling is pale and fever absent; I begin the treatment with mercury, and most commonly end it with this medicine alone, giving it in the 30th dissolved in water, a teaspoonful every three hours.

Gerhardt, too, looks upon *Mercur.* as the chief remedy when suppuration threatens.

Kreussler, *Knorre*, *Hirsch*, *Gross* and others speak highly of their results with mercury. The indications upon which they gave it were those above mentioned. In isolated cases closure of the mouth, induration of the gland, pains in carious teeth and jaundice were present.

Although *Mercur. sol.* is recommended in the majority of cases, we should prefer *Mercur. vin.* In scrofulous children *Calomel* or *Mercur. jodat.* might be found to act more promptly.

6. SALIVATION.

This is one of the most constant and early of the symptoms of mercury. As it has already been presented in speaking of stomatitis we may proceed at once to consider the recommendation of authors.

Bohr says: The most important remedy in this affection is *mercury* under all circumstances, unless the abuse of this drug can be assigned as the cause. Its invariable effect upon the salivary glands warrants us a priori in looking for decided effects from it in this disease. It is suitable in that uncomplicated form which occurs without other troubles, as well as in those which accompany affections of the mouth, fauces, stomach, liver and pancreas. Recent cases, or such as are not of too long standing, are most speedily removed by it. The saliva should have a sweetish metallic flat taste; the secretion should be stringy, viscous and attended by a fetid sweetish smell from the mouth. The most serviceable preparation here is the *Mercur. viv.* in trituration; next in order is *corrosive sublimate*.

Hughes recommends *Mercur.* in idiopathic salivation; but he has observed no beneficial effect from any remedy in the salivation of pregnancy.

Guernsey speaks well of *Mercur.* in the salivation of pregnancy, unless the affection is complicated with other, more especially with gastric symptoms.

Jahr mentions quicksilver among the foremost remedies for salivation.

Inasmuch as *Calomel* causes a more intense salivation than all the other mercurials, and produces this symptom the most speedily, it should be preferred to *Mercur. viv.* in all acute cases, while in those of a more chronic course the latter may be more safely relied upon.

7. RANULA.

Although no writer asserts that the excretory ducts of the salivary glands may be inflamed by the action of mercury, we may nevertheless declare this to be the case in the majority of instances, particularly as we are enabled to observe that the

mercurial inflammation of the fauces extends into the Eustachian tube by means of the continuity of the mucous membrane. If, therefore, ranula is caused by inflammation of Wharton's duct, mercury must necessarily be its remedy. The following symptom indicates inflammation of the duct of the parotid as affected by *Mercur. sol.*: "The orifice of the duct of the salivary gland behind the back teeth is swollen, white, ulcerated and very painful."

Kafka administers *Mercur. sol.* when, after the use of *Bellad.*, the pain and redness have diminished, but the swelling remains hard, preventing mastication and expectoration. In a tedious course of the disease he begins the treatment with *Mercur. sol.*, and then proceeds to use other remedies if in the course of six or eight days there is no diminution or softening of the swelling.

Jahr cured nearly every case he met with by means of *mercury*.

Helmuth finds *mercury* indicated when there is great salivation with painfulness of the surrounding gums, inclination to profuse sweats, and aggravation of the pain at night.

Thorer cured a case of ranula which had frequently been opened, with *mercury* alone.

Mercury often prevents suppuration. We would also prefer *Calomel* to other mercurials on account of its prominent relation to diseases of the mouth.

b. Diseases of the Fauces.

The above quoted authors furnish the following description of mercurial inflammation of the fauces. The fauces and tonsils are dark red, darker in spots, swollen. There is much burning and difficult deglutition. The dryness of the fauces causes frequent efforts at swallowing of saliva. The nose is stuffed and dry. On talking there is a pain like burning and pressing; on continued talking there is slight burning and flying stitches. Tough glossy mucus is raised by hawking in the morning. If these symptoms return frequently an extensive ramification of vessels is to be observed upon the mucous membrane, especially the uvula is surrounded with a circle of

them. In other places isolated vessels may be seen running like thickened cords in various directions, and of livid blueish color, while clusters of varicose vessels surround the former. Frequently the mucous membrane becomes spongy and ex-coriated, and finally ulcers develop in these places. These are seated particularly upon the tonsils, above the uvula or on the side of the velum near the cheeks, and also upon the latter. An ulcer very rarely appears upon the posterior wall of the fauces. The ulcers are generally of the size of a split pea, and are close together. (The syphilitic angina is of a copper colored redness and is sharply defined by the velum).

Mercur. viv. commonly causes chronic angina in workers in quicksilver, while the acute inflammation of the fauces with great swelling of the tonsils and painful deglutition is met with in cases where mercurial fumes are suddenly inhaled in great quantity and after mercurial inunction.

Mercur. sol. exhibits the following symptoms bearing upon this subject: Sore throat; sensation as if something had become lodged in the throat; pain in the throat as if an apple core were sticking in it. Sensation as if he had something in his throat that he ought to swallow. Difficult deglutition; only with great difficulty and forcible pressure he was able to swallow something. Pain in the throat on swallowing, with hoarseness. Roughness on the roof of the mouth, which smarts on being touched with the tongue as if the palate were sore. Dryness of the palate as if caused by heat. *Heat rises up in her throat.* Pressing pain in the throat. First there is burning down the œsophagus, then in the abdomen. Deglutition is difficult and painful, as if he had burned the back of his throat, or swallowed burning oil. After a moderate dinner a scalding vapor rose from abdomen into the throat, with increasing pain of the throat and violent thirst. Heat rises up into her throat. Pain in the throat as if caused by dryness. The anterior part of the tongue is very slimy, with dryness back of the throat. Pain in back of the throat as if caused by great dryness. His throat feels so dry that he has to keep swallowing. The throat is continually dry and is painful as if the posterior part were narrower than the rest; there is a

pressing sensation in it when he swallows which he is constantly obliged to do, because his mouth constantly fills with saliva. Fine pricking sore throat as if a needle were lodged in the same; the stitches penetrate to the ears. Pricking in the posterior part of the palate. *Pricking pain in the tonsils on swallowing.* Great elongation and swelling of the uvula. Pain in the side of the throat on blowing the nose; also pressing in the throat as if it were swollen. Ulceration of the tonsils, with sharp piercing pains in the fauces when swallowing. Sensation as if sore in the right side of the throat, also when not swallowing.

Corrosive sublimate: Dryness in the throat extending up from the chest. Beer causes a scratching sensation in the throat, and after drinking she grows hot and has a red face. Pricking in the throat as if caused by needles. Difficult deglutition as if the throat were closing up. Deglutition very difficult and painful, so that a little fluid causes contraction of the œsophagus and stomach. Tonsils swollen and covered with ulcers. Sore throat from pain in the uvula. Violent paroxysms of spasmodic deglutition during the night. The neck and nape of the neck are much swollen, especially on the right side. The inner portions of the mouth were so much swollen as to cause retching and vomiting on trying to swallow. Excruciating pain at every attempt at deglutition. Fauces much inflamed. Scratching rawness back in the throat causing frequent hawking. Swelling of the fauces with danger of suffocation. Inability to swallow even liquids, with heat in the mouth, tongue and fauces like burning coals; followed next day by expectoration of liquid and coagulated blood. The membranes formed on the palate can be drawn out with the fingers. In the fauces there is an ulcer as large as a pea, and on the left side of soft palate there is separation of solid parts, looseness of the teeth; copious salivation which afterwards becomes bloody (after external application of the drug). Cicatrices in the cavity of the fauces, with only a trace of the remaining uvula; the pharynx is dark red and painful to the touch. Roughness in the throat which impedes the speech but not deglutition. Troublesome roughness of the pharynx,

increased on swallowing liquids. Difficult deglutition; when attempted, it causes retching and vomiting. Great pain in pharynx with dysphagia. Excruciating pain in the pharynx. Burning pain in the fauces. Burning in the pharynx.

Calomel: Burning in the throat. Ulcers in the pharynx. Throat is internally swollen. Almost complete inability to swallow. Deglutition is impossible. All the internal parts of the mouth were much swollen. Deep bleeding ulcers which extend to the posterior nares (choanæ). Inflammation of the throat. Excessive pain on swallowing.

Red precipitate: Burning in the mouth and throat. Violent burning in the throat. Dryness, pain and redness of pharynx. Discoloration of the internal surface of pharynx.

Mercur. cyanid.: Compare chapter on Diphtheritis.

Cinnabar: Pricking sensation in mouth and fauces. Slight painfulness of palate. A contracting, burning sensation in the palate. Burning in the pharynx and whole chest, with general weakness. At night there is much dryness and heat in the mouth and throat, obliging him to drink frequently; there is some pricking pain beneath the back of the tongue. After having taken the 3d trit. he had the following symptoms next night: Dryness of fauces, thirst, feeling as if he had had no refreshing sleep. Pressing contracting pain in throat in swallowing saliva. Fulness in the fauces, which constantly impels him to perform the act of deglutition. His cravat oppresses him very unpleasantly as if his fauces were constricted from below upwards on both sides, and were being drawn together inside, as if he would lose the power of swallowing, in the forenoon of the first day. Constriction in the throat as after eating sour pears, which passes off after rising. Little mucus in the fauces on the third day. The following cured symptoms are recorded: Inflammation with great dryness in the mouth and pharynx (in many cases $\frac{1}{2}$ 0 cured very rapidly, Pehoson). Dryness and irritation of the fauces (posterior nares, tonsils, fauces) in the night, with painfulness in the morning. Secretion of viscid mucus in the day-time, with inclination to empty deglutition (with one prover).

Kafka says with regard to the therapeutics of catarrh of the

fauces: "If we are consulted regarding light cases of dysphagia we prescribe *Mercur. sol.*³ in two or three doses daily when the mucous membrane of the pharynx is pale red, spotted or striped, whereupon the dysphagic symptoms improve as a general thing after several hours, a result which probably might also be obtained without medicine. Pains of the neck, stinging in the ears, and difficult motion of the head also soon disappear after *Mercur. sol.* We also prescribe the same remedy when the tonsils are considerably swollen and covered with yellow exudation." He also uses mercury (and Sulphur) with benefit in *angina aphthosa*, when uncombined with hoarseness. He says concerning *angina phlegmonosa*: As soon as rigors or throbbing and pulsating pains appear in the tonsils, we give *Mercur. sol.*³ for the purpose of promoting the dissolution of plastic exudation and hastening the termination by the formation of pus, while linseed poultices are applied to the neck. We are aware of differing in this respect with many practitioners who believe that we are able to prevent the formation of pus by means of *Mercurius*; our experience leads us to opposite conclusions. A case of *angina tonsillaris* which is rapidly cured with mercury, without suppuration, belongs to the catarrhal form which rarely ends in suppuration. No remedy has yet, in our experience, been able to prevent suppuration in the phlegmonous form of the disease. As the abscesses are often upon the surface and very minute, they frequently escape investigation and this constitutes the cause of error.

Böhr speaks of *mercury* as follows: It will rarely be the proper remedy in *angina tonsillaris* in the beginning, unless this affection arises in company with, or out of severe catarrhal inflammation of the fauces. But the physician is generally not called until the inflammatory swelling has attained a high degree, and in that case *mercury* would be the remedy at the outset. The precise indications for this remedy are as follows: "The whole of the fauces are deep red or brownish-red, generally the redness is unevenly distributed; all parts are much swollen, especially the tonsils on which the redness is deepest, and where we generally discover little ulcerated spots with

pseudo-membranous exudation. The saliva is very viscid and slimy, and causes frequent desire to swallow, while the cavity of the mouth is affected with catarrhal inflammation. The breath is peculiarly offensive. The pains are generally less severe than when Bellad. is indicated, but the general feeling of the patient is worse. All those symptoms are present, regarding which we may persistently affirm that they are the precursors of suppuration, but we shall generally succeed in preventing that termination if the inflammatory process has not advanced too far.

Mercury is best administered in the form of *Mercur. sol.* in one of its lower triturations and in frequent doses, but we should be careful not to omit the remedy too soon, because visible improvement does not appear at once, while the disease even seems to progress. Nevertheless the symptoms of exudation not infrequently diminish, although suppuration appeared imminent.

Hughes prefers *mercury* to Bellad. only in those cases where there is a tendency to suppuration, notwithstanding slight inflammatory action. According to *Hughes* the proportion of application of mercury to that of Bellad. is as 1 to 20.

In *chronic tonsillitis* he recommends *Mercur. jodat* upon the following indications furnished by *Cooper*: "When we have reason to fear relapse, when there are superficial ulcerations; when the tongue is coated, and when there is a tendency to glandular swellings in other parts, or when we suspect hereditary syphilis." According to *Cook* the same remedy is very efficacious in chronic follicular catarrh.

According to *Helmuth*, *Mercur. sol.* or *viv.* is indicated when the tonsils are much swollen; when the secretion of saliva is increased and deglutition difficult, or when there is suppuration with throbbing and shooting pains and with little, solitary round ulcers of indolent character.

Jahr does not mention mercury in his *Therapeutic Guide*, in catarrhal, rheumatic, sloughing and chronic angina. But under the head of phlegmonous inflammation of the throat he says: "When suppuration has already begun and when Bellad. has not been able to prevent it, I always administer *mercury*,

which generally causes the abscess to break in less than twenty-four hours, but it should never be given too early, because if the abscess has not come to maturity, it will only increase the inflammation and cause it to be more obstinate. In slowly progressing ulcers which are not very painful, *mercury* is the most useful remedy." He mentions *mercury* in aphthous inflammation of the throat, but in his *Clinical Guide* mercury is mentioned among the first seven remedies with the following indications: "It is to be used in the beginning of treatment, before Bellad., or in alternation with this remedy, and is used in general as follows: *Violent stitches in the throat and tonsils*, especially on swallowing, when the piercing pain extends to the *parotids*, ears and submaxillary glands, during swallowing especially. Burning in the throat with soreness and pain. Swelling and *much inflammatory redness of the affected parts*. Elongation of the uvula. Constant inclination to swallow, with the feeling as if a plug were lodged in the throat and which ought to be swallowed. *Difficult deglutition*, especially of fluids, which regurgitate through the nose. Foul taste in the mouth; copious salivation. *Swelling of the gums* and of the tongue. Suppuration of the tonsils, or ulcers in the throat *which spread very slowly*. Aggravation of the disease *at night* or evenings, as well as in the open air and while talking. *Chills and rigors toward evening*, or alternate chills and heat. Sweat without relief, rheumatic tearing or drawing pains in the head and neck.

Gerhardt repeats these same indications and considers *mercury* as the chief remedy in tendency to relapses, and recommends it in chronic and syphilitic angina.

Kreussler finds *Mercur. sol.* to be a very useful medicine in dark redness in the throat, swelling first of the tonsils, then of the surrounding parts; collection of mucus in the throat. Not infrequently there are aphthæ and foul breath.

According to *Hering*, *mercury* is often to be given when, after taking Bellad., the throat still remains red, especially when there are ulcers present which originate slowly and cause slight pain.

Moly cured chronic and habitual angina with *Mercur. sol.* in

two to four days, when the disease was aggravated in cool air and at night, accompanied with piercing pain on empty swallowing.

Segin observed beneficial effects of *mercury*, particularly when the pain and swelling of the structures of the mouth were accompanied with salivation, with circumscribed redness, inclination to suppuration or actual commencement of the same, with ulcers in the throat and also in the mouth.

Meyhofer found *mercury* to be a true specific when in epidemic angina attacking particularly young people, already the second stage had begun, which occurred on the second or third day. Younger patients received *Mercur.*⁶ every three hours, in one drop dose. Older patients took *Mercur.* 5th or 4th. In irritable subjects salivation would set in, accompanied with the peculiar odor. The disease lasted from three to five or seven days. But cases that were treated allopathically during the same epidemic lasted from nine to eleven days.

Knorre says that *Mercur. sol.* produces excellent results if the local inflammation and the fever of angina faucium is not very violent, if the former is confined to the mucous membrane of the tonsils, and when the fauces are but slightly reddened, or covered with slimy thickened masses; or when the tonsils are considerably swollen but not very painful in proportion to the degree of swelling, and covered with white flakes of loosened mucus; when the tongue has a whitish coating, growing yellow toward the back; when the odor proceeding from the mouth is very offensive, and when the parotids are painful and enlarged; when there is salivation and tearing pains in the limbs.

Hendrichs assures us that since he has used *Calomel*² every two or three hours, the disease has terminated much more rapidly than when he gave *Bellad.* and *Mercur. sol.*

Wurmb says: The submucous angina which differs from the catarrhal form by the great redness and swelling of the mucous membrane; dysphagia; active participation of the circulation and tendency to the formation of pus; found its remedies chiefly in *Bellad.* and *Mercurius*. The latter particularly in

threatening or actual suppuration. In recent cases of *follicular tonsillitis*, *Mercur. sol.* is the remedy, but in chronic cases *Hepar.*

According to *Hofrichter*, mercury will not fail to cure when the tonsils and neighboring parts are seriously swollen and red; when the swelling and flaming redness extended over the palate far forward, accompanied with a desire to swallow. There is dysphagia and fluids regurgitate through the nose; secretions are offensive.

Goezes observed that *Mercur. sol.* is almost a specific in most cases of angina, characterized by swelling of the tonsils or sub-maxillary glands, but especially in those forms in which cheesy exudation occurs at an early stage upon the inflamed portions of mucous membrane, and which appear to be croupous if not actually diphtheritic in character.

Lastly, we would lay stress on the fact that *Mercur. sol.* does not correspond well to angina phlegmonosa, but the appearance of the throat as found in cases of poisoning with *corrosive sublimate*, furnishes a very excellent simile of this disease, on which account we earnestly recommend this remedy.

Calomel likewise deserves more attention, especially in scrofulous children, or in complication with aphthæ.

Mercur. vin. causes chronic angina, characterized by remarkably enlarged and tortuous veins, and should be more frequently employed in such cases.

If the symptoms indicating *Cinnabar* are present, as in the case of a prover who, during a proving was cured of chronic angina, characterized by dryness at night and pain in the morning, secretion of viscid mucus in the day-time and inclination to empty swallowing, in that case that remedy should be tried.

Kafka writes concerning *syphilitic angina*: We generally succeed entirely in syphilitic catarrh of the fauces by the methodical use of *Mercur. sol.*³, given in two daily doses for six days and then omitted for three days. *Ulcers* of the *pharynx* require the methodical administration of *red precipitate*, or *Cinnabar*, each in the third trituration. Also *corrosive sublimate*³ may be of excellent service. The various forms of *mercury and iodine* (protiodide), should be employed in destruc-

tive disease of the bones or cartilages; the methodical use of the 3d trit. is recommended.

Bohr recommends *Mercur. viv.* in syphilitic cutaneous eruptions, and remarks: "We do not hesitate to recommend it highly in this disease, particularly because it corresponds so well to the hyperæmia and ulceration of the mucous membrane of the pharynx."

Hughes mentions *mercury* as being the first remedy in syphilitic affections of the mouth and fauces.

Yeldham recommends *corrosive sublimate* when *Aconite* and subsequently *Apis* have failed to cure.

Jahr uses *mercury* first in all ulcerations, chancre-like forms of syphilitic affections of the mucous membrane, especially in those which resemble the simple or Hunterian chancre, but in the phagedenic forms he prefers principally *corrosive sublimate* until improvement ensues, at which period he continues the treatment with *Mercur. sol.*

Gerson found that red precipitate was particularly efficacious in syphilitic throat diseases, when the ulcers were seated upon the tonsils, the posterior wall of the pharynx, tongue and lips, accompanied by burning pain, profuse suppuration, and when they exhibited elevated edges, and when the adjoining portions of mucous membrane were not very livid in color. He often has met with cases of syphilis in which ulcers would come and go upon the tonsils, or the posterior wall of the pharynx, after every slight cold; when these were imbedded in folds of mucous membrane, they resembled simple angina; they torment the patient exceedingly, almost drives him to distraction. In subjects of this kind, a dyscrasia of another form was generally demonstrable. But even in these cases, he found the *red precipitate* to be the best remedy, after many experiments.

Calomel, if more frequently employed in such cases, would certainly be found to occupy a prominent place among mercurials, as it acts so decidedly upon the mucous membrane of the mouth and pharynx.

c. Diseases of the Œsophagus.

The following symptoms are those of the Œsophagus: In the case of the seventh animal experimented on by *Overbeck*, we find that the inflammation of the cavity of the mouth extends also to the Œsophagus.

Mercur. sol.: "Constant pressing pain in the Œsophagus, in the region of the larynx, worse while eating, and causing a sensation as if she had to swallow over a piece of raw surface, with burning pain in that place. A worm seems to rise up into his throat, so that he is constantly obliged to swallow, which gives some relief, without, however, feeling that anything actually passes down. Paroxysms of pressing pain in the Œsophagus, as in an ulcer were about to form there."

Merc. corr. subl. Dysphagia.—An attempt at swallowing causes retching and vomiting. Heat and burning throughout the entire Œsophagus. Burning pain in the Œsophagus, increased by external pressure. Pain along the Œsophagus extending into the stomach, which impedes deglutition very much. Constricted feeling of Œsophagus. Dysphagia; after partaking of soup he is unable to swallow the meat. Complete dysphagia. Acute pain like stitches in the chest and deep in the Œsophagus as if a morsel had lodged there, at noon while eating beef and vegetables. Although he is able to swallow food and drink, the pain is somewhat increased by swallowing, as well as by regurgitation of wind; when this pain subsides there is cutting pain in upper and right side of the abdomen. Contraction of the Œsophagus and stomach when swallowing the least mouthful of fluid (No. 27, 29). The whole length of the Œsophagus is painful (No. 27, 40). Burning in the Œsophagus (30, 45, 30). Autopsies revealed the Œsophagus injected at its lower third (31–41). Inflammation of the Œsophagus. Where the Œsophagus enters the stomach, the mucous membrane is much injected and thickened; on cutting through it, a whitish purulent matter poured out (No. 33.) Lymphatic exudation into the Œsophagus (No. 50.) Ulceration of the Œsophagus (No. 59.) While we see the characteristic symptoms produced by *corrosive sublimate* upon the fauces, stomach, and intestinal

canal, when the remedy is applied externally and internally, proving the specific effect of that medicine beyond a doubt, we are not able to make the same distinctions with regard to the œsophagus. But as serious anatomical lesions appear in the œsophagus, through which the poison passes with so much rapidity, we feel justified in assuming that these lesions are not the result of local corrosive action, but that they are produced by the resorption of the poison. Indeed the provings of *Nusser* have resulted in the production of symptoms relating to the œsophagus, and *Merc. sol.* also has been shown to produce such symptoms in *Hahnemann's* provings.

Kafka generally claims to accomplish his object with *Bellad.* in acute inflammation of the œsophagus. But when there are signs of incipient suppuration, such as rigors, or pulsating pains in any part of the œsophagus, *Merc. sol.* might possibly be the suitable remedy, in order to assist the resorption of the exudation.

Bæhr says that in inflammation arising without visible cause, *Mercury* should be given, preceded, however, by a few doses of *Bellad.* In stricture of the œsophagus, caused by hypertrophy of the mucous membrane, he also mentions mercury among other remedies.

Joslin furnishes the following indications for *mercury* in stricture of the œsophagus: "Feeling of a foreign body in the pharynx, dysphagia, violent exertion in swallowing something. Spasmodic impediment in swallowing, with danger of suffocation. Violent pain in the œsophagus.

Jahr also mentions *mercury* in *œsophagitis*.

As far as the symptoms are concerned, *corrosive sublimate* deserves the preference in inflammations of the œsophagus. It may also be chosen as the proper remedy in simple œsophagitis, and also when it is caused by burning, wounds from foreign bodies, swallowing of corroding substances, etc.; in the latter class of cases proper measures should first be taken to remove the irritating cause according to the indications given by *Kafka*.

d. Diseases of the Stomach.

1. DYSPEPSIA.

We learn from Hermann's report on the diseases of workmen in Idria, that among 122 sick workmen, twenty suffered from dyspepsia. In a second observation, he found that six out of eighteen had dyspepsia. Also among the mirror-makers mentioned by *Kussmaul*, there were many who had lost their appetite; the same was the case in several instances (6, 10, 11,) observed upon man, and almost every animal experimented on by *Overbeck*.

Merc. sol. has the following symptoms: Loss of appetite, satiety after a few mouthfuls; aversion to meat, coffee, butter, warm food. Aversion to wine and brandy. The taste is bitter, foul, like *rotten eggs*, salty, metallic, sweetish, slimy. Qualmishness; *collection of water in the mouth* at night. Eructation of wind, sometimes of sour taste, bilious, bitter. Heartburn; eructations so that acrid fluid rises into the mouth. Frequent hiccough.

Jahr mentions the following indications for mercury: *Foul, sweetish or bitter taste, sometimes in the morning*; loss of appetite or great gluttony, with rapid satiety while eating. *Aversion to solid food, meats, and boiled or warm food, with longing for refreshing things*; longing for milk, cold drinks, or even for wine and brandy. *Pressure in the pit of the stomach, eructation, heartburn, and other inconveniences after every meal*; especially after eating bread. *Much eructation, nausea, and qualmishness; painful sensitiveness, fulness, pressure and tension in the region of the stomach.* Flatulence, constipation, often with ineffectual straining at stool. Melancholy, hypochondriacal, distressful mood and irascibility.

The symptoms which principally point to *mercury* are: increased secretion of saliva, and collection of water in the mouth. Advanced age, and hypochondriacal mood also indicate mercury. Of the various preparations, *Merc. sol.* is best suited for acute affections, and *Merc. viv.* for chronic affections.

2. GASTRITIS.—HÆMATEMESIS.

In order to form a correct opinion regarding the effect of mercury upon the stomach, and in order to meet the objection that the effect is that of local irritation, we should examine the gastric symptoms produced by the external application of mercury.

Animals which have had corrosive sublimate applied to the subcutaneous cellular tissue, or injected into the jugular vein, are affected with vomiting. Dissection reveals inflammation of the gastric mucous membrane, with extravasation of blood and ulcers; especially at the pyloric extremity. That the vomiting is not produced by irritation of the vagus, is proved by the experiments of *Brodie*, in which vomiting also occurred after cutting the nerve.

In our cases of poisoning after external application of *Corrosive sublimate*, we find in No. 2, bloody vomiting; in No. 3, violent pains in the epigastrium, especially in the region of the stomach, eructation, loathing, vomiting; in No. 4, cardialgia, bilious vomiting; in No. 5, vomiting of green masses; in No. 6, pains in the stomach, nausea, vomiting without cessation; in No. 7, vomiting; in No. 8, retching and vomiting, gastralgia; in No. 9, inflammation of the stomach; in No. 10, violent pains in the stomach, painful eructation and vomiting; in No. 13, inclination to vomit; in No. 14, the serous and mucous coats of the stomach are inflamed; in No. 15, repeated vomiting.

The records of autopsies which portray the appearance of a *perforating ulcer of the stomach*, we are unable to make use of as indications for corrosive sublimate in this disease, as these appearances may be dependent on local corrosive effects; although we have seen similar effects resulting from hypodermic application of the poison. We are constrained to express this opinion in consideration of the result of an autopsy after poisoning with *red precipitate*, No. 5. In this case a particle of the poison was found in the centre of each ulcer. Nevertheless, it is a fact that corrosive sublimate produces gastritis with all its symptomatic and anatomical signs.

After the internal administration of corrosive sublimate, we

meet with bloody vomiting very frequently, just as we find the same after external application; on this account these two affections of the stomach point to this remedy, particularly in the presence of other symptoms characteristic of corrosive sublimate; especially in case of complications, or in the form of symptoms of circumscribed or general peritonitis.

The choice will be especially confirmed in the presence of adynamic fever with irregular pulse, and cold sweats, violent gastralgia, especially of burning pains. Aggravation at night: complications with affections of the mouth or of the liver, with bilious vomiting, etc.

The three cases diagnosticated by *Bicking* as *gastromalacia*, treated and cured with calomel, have reference to this subject.

In his monograph on gastralgia, *Herschel* says that only material affections of the mucous membrane, from catarrhal swelling to actual inflammation and organic metamorphosis, are especially adapted to the more powerful mercurials. These are suited particularly to acute and febrile forms of the disease, while in chronic cases they are to be administered as intercurrent remedies at most, when there are acute aggravations, as in indurations, scirrhus, etc.; they should be administered cautiously and at long intervals in ulceration and softening.

AFFECTIONS OF THE INTESTINAL CANAL.

1. ACUTE AND CHRONIC INTESTINAL CATARRH.—TYPHLITIS.

This affection is caused by all preparations of mercury, when given in doses so small as not to cause enteritis. Thus, under *Merc. viv.* we find profuse diarrhœa (28); diarrhœa with unconscious discharges (28); diarrhœa (30, 33, 35, 36, 47). From mercurial inunction we find painful dysentery under 1 and 2. Moreover under 2, colic, frequent desire for discharges, bilious diarrhœa; also loose discharges, under 10 and 11. Post mortem examination reveals: Mucous membrane of the ascending colon swollen and softened; solitary patches also swollen; mucous membrane of sigmoid flexure and rectum excoriated in spots (29). Constipation, which is so common in chronic intes-

tinal catarrh, is frequently observed among laborers in mercury (26, 32, 33, 38, 42).

Merc. sol. Hahn. : Discharges after some pain ; discharge after pinching and twisting pain in abdomen ; continued pressure with but small passages, and pain. Cold sweat in face with great distress, for fifteen minutes, then loose discharge. Before discharge much pressure, distress and trembling of whole body ; after discharge, bitter, acrid eructations and some heartburn. Violent pressure, calling for immediate evacuation ; sour smell of discharge ; chill before each discharge ; shivering before each discharge ; chill and pressure before the discharge, and paroxysms of heat during chill. Chill between the discharges, but heat, especially of face, during defecation. Much exhausted after painful discharge ; nausea and eructation during evacuation. Discharge of bloody mucus, with pain and tenesmus. Many discharges, of small quantity, during the day, irritating the rectum ; marks of mucus and blood in the fæces ; soft discharge, with mucus ; yellow discharge ; yellow discharge twice a day, without pain ; discharges now mucus, then fæces, four or five times ; discharges only at night, very sudden desire to defecate, becoming involuntary if not gratified ; diarrhœa ; diarrhœa in the evening ; diarrhœa at night ; diarrhœa with bloody streaks ; discharges looking red after several hours ; *bloody discharge with sharp, painful sensation in rectum* ; discharge of dark green slime after pressure in abdomen ; dark green, bilious, foaming discharges ; *green, mucous, sharp discharges, irritating the rectum* ; green, slimy discharge, with burning and protrusion of rectum ; soft. brown discharges, floating on water ; discharge with cutting and pressure in rectum ; burning discharge ; burning in rectum ; discharge, with much blood, for many days, then hard discharges, with blood ; green discharge, with cutting and pinching ; *burning pain in rectum*, with soft discharges ; burning in rectum after each discharge ; pain ; desire for discharge with much passage of wind.

The following symptoms indicate chronic intestinal catarrh with constipation. Discharge only once in three days ; constipation for many days, with catarrhal fever, anorexia and disgust for everything, except beer ; discharge consisting of small

fragments, coming slowly and with much pain; discharge of small, hard lumps; hard discharges.

Merc. subl. corros., sensitiveness and meteorism of abdomen, with dry tongue; painful sensations through the whole intestinal canal, with general weakness; violent pain in intestines; abdomen painful to pressure; pain in stomach and bowels; violent colic and cardialgia; burning pains about the umbilicus, with remissions and intermissions, coming at continually shorter intervals; pain extending over whole abdomen, which is distended and painful, but soft; also restlessness, heat, thirst and flushed face: pulse tense and rapid; pain and tenesmus after eating potatoes; pain about navel after eating bread and fresh butter; pain on right of navel after using sugar; pain in abdomen with chill, although the air is warm; abdominal pain below the navel, after partaking moderately of sour, but ripe, apples; tenderness and desire for a discharge on going out in the evening; peculiar distressed feeling in abdomen, especially in the region of the cæcum and transverse colon; both regions sensitive on pressure, the pain being worse during the morning and diminished towards night; feeling of pressure in region of cæcum and colon: violent pain in cæcal region; after the usual morning discharge, diarrhœa, as long as *Merc. subl.* is taken; pain before the discharges; watery stools with pain; pain, with six discharges; gurgling with three soft, brown stools; copious and bilious discharges per mouth and rectum; green discharges; bilious excrement; two slate-colored stools; very offensive discharges; two offensive, greenish-black, soft discharges; after breakfast, soft, yellow, painless discharge, with tenesmus; during the day frequent desire to go to stool, with flatulence; after cessation of vomiting, colicky pain about the navel, followed by three liquid discharges, with tenesmus; continued tenesmus, with discharge of circular masses of coagulable lymph. The other symptoms are given under the head of dysentery.

Post-mortem examinations after poisoning with sublimate show: Throughout the whole intestinal tract, signs of inflammation, softening and ulceration. That this inflammation of the mucous membrane is not the result of local action of the

poison, is shown by the two dissections (No. 14), where inflammation of the small intestine was found after the external application of sublimate.

Calomel.—About twenty discharges daily (5); three to four discharges daily (10); discharges (11); pain, and eighteen watery, green, mucous discharges, mixed with blood (12).

Merc. præcip. rubr.—Pain over whole abdomen (1, 2); abdomen distended and too painful to endure the least pressure; feeling of pressure in abdomen (4); painful colic with inclination to stool, with sensation in rectum of a red-hot iron ascending and descending (6); violent colic (7); severe abdominal spasms (9); rumbling in bowels (5); severe diarrhœa (1, 2); many painless discharges (4); discharges, with pain and pressure (5); bloody discharge (5); frequent watery stools (5); passage of a small quantity of blood, with violent pain and tenesmus (6); bloody diarrhœa (7, 9).

The dissection in No. 5 revealed no noticeable changes, only the contents of the duodenum consisted of a brownish opaque fluid.

Mercur. cyanid.—Vomiting and diarrhœa, occurring alternately twenty to thirty times during twelve hours; the patient drank freely, vomiting six times, and had eight offensive, green, mucous discharges; copious discharges with violent pain; sensation of coldness, followed by nausea, vomiting and diarrhœa, with pain; epigastrium and abdomen sensitive to pressure; violent pain, worse after each discharge; two thin, bloody discharges, without urinating; mucous discharges, with tenesmus, at night; continual tenesmus but infrequent stools, the discharge being mixed with blood; soft discharge after some pressure; six fluid, offensive discharges in eight hours, after much straining; no stool during the second, third, or fourth day. After an injection, two fæculent, dark-colored and bloody discharges, without micturition; a fæculent stool of dark color; no discharge during third, fourth and fifth day, then again diarrhœa.

Cinnabaris.—Pain in abdomen on second day; pain in colon, with frequent discharge of offensive gas, and a stool the first day; drawing pain in abdomen for three hours, beginning at

11½ A.M.; sharp pain in the intestines, occurring in a subject who often took the 3d trituration; colic in lower bowels, and flatulence, after taking the first dose (colic after eating cabbage); the first day and second night after taking the medicine, pain about abdomen by day and night, causing uneasiness; cutting pains at intervals during the day, more flatulence mornings than afternoons or evenings; pain in bowels before each discharge; six hours after taking the same trit., rumbling in bowels and transverse colon for an hour and a half; after retiring at night, rumbling in bowels with pain and nausea; feeling of distension of abdomen and intestines; pain in intestines; desire to go to stool in the morning but no discharge; while first taking the 3d trit., the bowels are confined; after a week they are open; no discharge the seventh and eighth day: on the ninth day a natural discharge with much straining and flatulence; the prolapsus of rectum with pain, until night; inclined to constipation while taking the medicine; only one discharge a week; abdomen distended, stool hard and copious; obstinate constipation, continuing while taking the medicine and afterwards; bleeding piles for two days; violent itching in rectum, worse at night; two moderate, soft stools, daily, preceded by pain; two stools in the afternoon, the last with difficulty; two stools daily; morning, moderate passage of wind, with sensation as if a copious stool would follow; on rising, a soft stool, with pain in rectum; small lumps about anus, with tickling and burning; soft stools and tenesmus; after stool in afternoon, a sensation of tickling in rectum as from a worm; after dinner a sensation of weight and pain in rectum.

Kafka prescribes *Merc. sol.* in intestinal catarrh, with fever; if, after the use of *Aconite*, the diarrhoea continues, although the fever has diminished, and copious perspiration has set in; when pain before stool is still severe, and the discharges are watery, mucous, bloody, irritating, with more or less tenesmus and burning in rectum. He prescribes the same remedy when the lower part of the small, or the upper part of the large intestines, is affected with painful symptoms referable to those parts, violent before, and ceasing after, an evacuation. Also for frequent, thin, faecal, very offensive discharges, more frequent at

night, and caused by taking cold. He also recommends *Merc. sol.* for bloody stools; or if they irritate and inflame the rectum; also in gastro-intestinal catarrh, with jaundice. In catarrh of the lower part of the colon, with mucous and bloody discharges and tenesmus, he has seen the best results from *Merc. sol.* or *corr.* (Puls., Ipec., Sulph.). In acute catarrh of rectum, caused by cold, with violent tenesmus, but no discharge, he found *Merc. (Puls., Sulph.)* very useful.

He gives *Mercur.* in *chronic intestinal catarrh* when the diarrhœa is chronic, the stools mucous or fæculent, with pain about the navel, and straining before stool. The discharges are most frequent at night, with burning and pressure in the rectum, and irritation of the anus.

Bähr finds *Merc.* more useful for the diarrhœa of children, especially if teething, than for adults. The discharges are not frequent, they are fæculent, mixed with some mucus and dark green secretions, and irritate the rectum. The pains are sharp, and precede the discharge. The presence of fever indicates the remedy also.

Bähr recommends *Mercur.* in *bilious fever*, when the fever is violent and worse at night, with headache, restlessness, tenderness over liver and stomach, yellowish coloring of skin and eyes; bitter taste and nausea; bilious vomiting; desire for acid; and, finally, discharge of bile mixed with mucus.

Hartmann prescribes *Merc.* in *gastric fever*, when the appetite is impaired; with furred tongue; dryness of throat; bad taste in mouth; nausea and headache; distress over region of stomach and liver; some eructations; sedimentitious urine; irregular discharges; yellowish coloration of skin, great prostration.

In acute intestinal catarrh he recommends *Merc.* if the discharges are slimy and painful, and mixed with blood, causing irritation and prolapsus of the rectum.

Hughes does not mention *Merc.* in *diarrhœa*, but recommends *Merc. corr.* (alternately with aconite), in inflammatory discharges of children, located in the colon, and with a tendency to dysentery.

Guernsey uses *Merc. sol.* in diarrhœa where there is violent

pain before, and less after, a discharge; discharges foamy, slimy, bloody and dark green; the lower extremities of children cold and clammy. He recommends mercury in the constipation of children, where there is salivation, irritation of throat, swelling of glands, frequent desire to go to stool, aggravation on taking cold.

Jahr recommends *Merc.* when the stools are most frequent at night, when they are *watery, mucous*, foaming, bilious or bloody, light yellow or greenish; frequent discharges and irritation of the rectum; violent colic pains; acid stomach and eructations; chills, cold sweats and prostration; in autumnal diarrhœa, from catching cold, with much pain, and green, watery, mucous and bloody discharges, and sometimes vomiting. In constipation he recommends mercury when there is a bad taste in the mouth, and the gums are sore, but no loss of appetite.

Gerhardt gives the usual indications in diarrhœa, but recommends *Merc.* in constipation following diarrhœa and organic diseases; when the discharges are alternately liquid and lumpy, with pain and tenesmus.

Hering gives *Merc. sol.* in painful discharges, causing cries and writhings, frequent desire but often unsuccessful; cold sweat and trembling; passage of green, watery, mucous, bilious matter, sometimes mixed with blood; great weakness, offensive breath; no appetite, nausea, or vomiting at time of discharge.

Knorre found *Merc. sol.* useful in the diarrhœa of infants about four months old, with acidity and symptoms of teething. The discharges were of the ordinary bilious character, with pain, crying and emaciation. It was also used for older children, when aphthæ were observed.

Schwarze uses *Merc. sol.* principally in cases of painful diarrhœa, occurring suddenly from catching cold. *Schelling* used it in painful diarrhœas with a tendency to such discharges. *Hofrichter* and *Müller* also give *Merc. sol.* according to the above indications.

Hofrichter prefers *Merc. dulc.* in bilious diarrhœas of young children, very copious, irritating the rectum, with prostration, tendency to canker, offensive breath, salivation and swelling of glands.

Clotar Müller prefers calomel 2d or 3d centesimal to the solubilis in the diarrhœa of children. In dysentery he prefers *Merc. corr.*

Gerson saw good effects from *Merc. corr.* in two cases of croupy affection of the bowels, with pain, tenesmus and bloody discharges, where *Arsen.* and *Laches.* had no effect. He recommends *Calomel* for constipation when it is caused by an inflammatory or croupy affection of the mucous membrane of the colon.

The great curative sphere of the mercurials is in the region of the colon, as is shown by the remarkable effects of *Merc. corr.* in dysentery, in typhlitis and in catarrh of the rectum. The irritating influence of mercury upon the liver gives an indication for its use in bilious diarrhœas. The specific influence of calomel upon the mucous membrane of both mouth and intestine, indicates its use in diarrhœa during dentition. The tendency to take cold while under the influence of mercury, points to its use in rheumatic diarrhœas, *Merc. sol.* being the most applicable. In acute diarrhœa of *scrofulous, rachitic children*, *Cinnab.* and *Merc. jod.* should be considered. *Merc. viv.* in medium doses, or *Cinnab.* should be used for *chronic constipation* with hypertrophy of the liver, dyspepsia, psychical disturbances, occasional colic and intercurrent diarrhœas.

2. ENTERITIS.

The enteritis caused by all mercurial preparations depends upon their specific influence, and not upon local irritation. This is proved by cases of poisoning in the human race, as well as in animals, and is confirmed by post-mortem examinations, the particulars of which need not be repeated. In *Typhlitis stercoralis* *Kafka* gives *Merc. sol.* 1st every two hours, if the pain is not severe, and there is no sign of antiperistaltic action. In 10 or 12 hours the pains diminish, a noticeable activity takes place in the bowels, and large masses of fæces are discharged to the great relief of the patient.

For the absorption of the exudation after *Inflammation of the Cæcum*, he gives *Bryon.*³, *Sulphur*⁶, or *Merc. sol.*³ In *Catarrh*

rhal 1 inflammation of the Vermiform Process, he finds that *Merc. sol.*³ favors the resorption of exudation.

In *Catarrhal Inflammation of the Rectum* he uses *Merc. sol.*, if there is violent pain, and mucus and blood with the discharge, irritating the anus.

Bähr considers *Merc. sol.* indicated in *Typhlitis* more by clinical experience than by physiological provings; most useful while the exudation is increasing and there is danger of suppuration. In *Enteritis* he prefers it to *Bellad.* unless there is severe diarrhœa.

Hughes recommends *Merc. corr.* after *Arsen.* in *muco-enteritis* of adults, characterized by the peculiar "beefy tongues." In inflammation of the colon, with severe pain and constipation, he uses *Merc. corr.* and *Coloc.* *Gerhardt* calls *Mercur.* the principal remedy in enteric inflammation, with cutting pains, bloody, bilious and mucous discharges, chills and sweat, thirst and coated tongue.

Jahr recommends *Merc.* (besides *Laches.*, *Bellad.*, *Bryon.*), after *Acon.* has reduced the fever. Also in *Colitis* (besides *Bellad.*); superficial erysipelatous inflammation (besides *Arsen.* and *Bellad.*), and in suppuration (besides *Laches.*).

Several cases of *Typhlitis* cured by *Mercur.* are to be found in our periodical literature. Periproctitis and perityphlitis are treated on the same indications; the circumstance being regarded that mercurials tend to absorb exudations.

3. ENTERALGIA.—COLIC.

Symptoms of colic are frequently found in cases of poisoning with mercurials. As this metal has often been found to affect the sympathetic system, it is not surprising that the mesenteric plexus is under its influence. *Kafka* uses *Merc. sol.*³ in *Rheumatic colic*, when the abdomen is sensitive, the pain is in the region of the navel, and is followed by bloody and irritating discharges. Further indications are the presence of coryza, or nocturnal cough, and pain in the limbs. A dose is given every hour or half hour, and a cure is effected very soon.

In colic from poisoning with *copper*, *Bähr* recommends first *Bellad.*, if there is a tendency to inflammation, and then *Merc.*

Jahr's indications for *Mercur.* are: Distention, sensitiveness and pain, especially about the navel; with hiccough, nausea, salivation, disgust for sweets, frequent discharges, *aggravation at night*, especially after midnight, chills and fever, prostration. *Hering* and *Gerhardt* give the same indications. The most appropriate preparations are: *Mer. corr.* and *Merc. præc. rubr.*

4. HEMORRHOIDS.

Having seen that mercury has a specific irritating effect upon the rectum, and a paralyzing effect upon the sympathetic nerves, causing dilatation of the blood vessels; we are prepared to find, in cases of chronic poisoning, congestion of the liver, constipation and formation of hemorrhoidal tumors.

Swellings, resembling piles, were found in the case of poisoning by *Merc. corr.* (28). Among the symptoms of *Merc. sol.* we find pressure and extrusion of piles (534). A pile is forced out during stool and is painful (580). Bleeding from rectum during micturition (581). Hemorrhages after stool (582). Kirsch reports a case of bleeding piles with *watery* discharges and great pain. Mercury relieved. The indications for mercury are: Bleeding piles, straining and itching at anus, watery and mucous stools, alternations of constipation and diarrhœa, colic, prolapsus of rectum, affection of liver. *Cinnab.* would seem most indicated.

Bæhr gives mercury in real inflammation of the piles, with suppuration. *Kafka* also uses it, together with *Acon.*, *Bellad.*, *Chamon.* and *Gelsem.* Guernsey gives it for hemorrhoids during pregnancy, when the usual mercurial symptoms are present.

5. INTESTINAL ULCERS.

In an experiment of *Overbeck's*, where mercury was applied by inunction, and care was taken that the animal could not lick itself, ulceration was found in the duodenum.

Merc. viv. produces excoriation of the mucous membrane of the rectum and sigmoid flexure (29).

Merc. corr. causes inflammation of the *lower part* of the ileum,

and small ulcers below the cæcum (52). Ulceration of sigmoid flexure (53). Ulceration of ileum and colon (59).

Merc. corr. and *Merc. viv.* should be used in chronic diarrhœa, where ulceration is suspected, and in tubercular disease *Gerson* recommends *Merc. corr.* in dyscratic ulcers, with violent pain in certain spots, tenesmus and discharges of pus and blood.

6. HELMINTHIASIS.

Mercury was first introduced into medical practice as a parasiticide by the Arabians, and is still so used by the Allopaths. In worms they recommend water that has been boiled with the metallic mercury, although none of the metal can be found in it chemically.

Scopoli says that the mercury-workers of Idria are generally afflicted by the presence of lumbrici, with the usual symptoms: pain after eating, bad breath, pale face, tickling in fauces and nausea; the worms departing by the mouth and rectum. We do not suppose that mercury favors the development of the worms at first, and then destroys them according to the law of similars, and we do not believe that the worms are more common in Idria than elsewhere; but the presence of the mercury in the human organism, no doubt, annoys the worm and makes it more troublesome until it is expelled.

Under *Merc. sol.* we find these symptoms: Tickling at anus as from ascarides (585); ascarides pass from the rectum (587); several large lumbrici are passed (588).

In the case of poisoning with *Merc. corr.* (38), we find the passage of one worm with the discharge; in case 56, loose discharges, with passage of two living worms.

Kafka recommends *Merc. sol.* among other remedies for the stomach pains caused by lumbrici. For the nocturnal itching of ascarides, he uses inunction with *Ung. Hydrarg.*, or if this does not help, he introduces into the rectum a suppository of the ointment made with cocoa-butter. This is usually sufficient, if not he injects into the rectum a solution of *Merc. corr.* (one grain to the ounce of water), or of *Asafœtida* or *Ol. terebinth.* In tapeworm he recommends *Merc. sol.* for the pains, and con-

vulsions caused by them. *Bæhr* mentions mercury among the remedies against the disagreeable symptoms caused by worms.

Hughes found that drop doses of *Merc. corr.*, or *Filix mas.*, or *Cupr. ac.* relieved the trouble caused by tapeworm, although the joints continue to be passed. *Guernsey* uses *Merc. sol.* when ascarides and lumbrici can be seen to leave the body. *Jahr* considers mercury the chief remedy for *Lumbrici* when there is fever, colic, nausea, distended abdomen, and small, mucous stools; if *Acon.* and *Cina* have had no effect. He also uses it for ascarides, besides *Sulphur*. *Hering* recommends two doses of *Sulphur* and one of mercury, at the decreasing moon. This has not been found reliable by *Jahr*. *Malz* found mercury useful in some cases of worm troubles. He uses the old remedy of one drachm of the mineral boiled for half an hour with four ounces of distilled water, one tablespoonful of this to be taken 2 to 3 times a day. The effect was so decided that the presence of mercury in the decoction could not be doubted.

DISEASES OF THE PERITONEUM.

PERITONITIS.

In this disease *Merc. corr.* is indicated not only by the subjective symptoms, but by the results of dissections in our cases of poisoning: mesentery and peritoneum much inflamed, with exudation (35); omentum much inflamed (36); peritoneum inflamed, omentum nearly destroyed (37); peritoneum congested, omentum nearly destroyed (38); peritoneal covering of intestine very vascular (34); omentum inflamed (including the two cases of external application in 14); an inflamed spot in the serous covering of the liver (in one of the two cases 14); many ecchymoses in the omentum along the two curvatures of the stomach (27). The subjective and objective symptoms indicating peritonitis, are: abdomen sensitive, meteoristic, dry tongue (31); abdomen swollen and sensitive (44); abdomen sensitive to the least pressure (38); abdomen swollen and not allowing pressure of clothes (62); patient shrinks from the least touch (34); pains about navel, with intermission; pain extending over whole abdomen, which is distended and sensitive to

pressure; also restlessness, heat, thirst, quick and tense pulse (25); great pain about navel (38): epigastrium and whole abdomen painful on pressure (50); abdomen distended and sensitive (18); abdomen contracted and very sensitive (29); epigastrium sensitive to the least pressure (3); burning heat, and the least pressure unendurable over epigastrium (27).

Besides the characteristic symptoms of peritonitis, intense pain and distention, we find also frequent vomiting (even after external application), frequent small pulse, the sensorium at first undisturbed, intense anxiety and cold sweat. In *Partial Peritonitis*, *Merc. sol.* is also indicated by these symptoms: inflammation of the omentum; of the serous covering of the liver and intestines; sometimes pain over the cæcum and sigmoid flexure (62); frequent micturition and retention of urine.

In the first stage of peritonitis, a few doses of aconite should be given. *Kafka* recommends *Acon.*, *Bellad.*, or *Atropin*, and Opium¹, and gives *Merc. sol.*², or *Iod.*², when there are signs of a fibrinous exudation. In chronic cases he uses *Bryon.*³ or *Merc. sol.* 2-3.

Bahr considers *Mercur.* indicated less for peritonitis than for enteritis. It is indicated in both forms when there are signs of suppuration, and this would be in the second or third week. A special indication would be: chills with fever, followed by copious sweats. In partial peritonitis he uses *Merc. sol.* at once, especially is there is suppuration and signs of an abscess opening externally.

Hughes uses first *Acon.*, then *Bryon.* and *Merc. corr.* Whether these remedies would suffice in cases of perforation of the stomach or bowels, he thinks doubtful. *Jahr* employs *Merc. sol.* only when there is suppuration. *Wurmb* uses *Merc. sol.* only in severe cases of chronic peritonitis, with suppuration. Of all mercurials, *Merc. corr.* is more specific in affections of serous membranes, as meninges, peritoneum, peri- and endocardium and pleura. We agree fully with *Hughes* in his recommendation of this remedy in peritonitis, and hope that it will soon be recognized by all practitioners as the principal remedy, after *Acon.*

DISEASES OF THE LIVER.

Herman says, speaking of the effects of mercury on the liver, that all the inhabitants of Idria are troubled with diseases of this organ; generally enlargement with all its consequences, and sometimes chronic atrophy. *Dieterich* says that calomel causes congestion of the liver and increased secretion of bile; also induration, jaundice and dropsy.

Chapman believes that the large doses of mercurials ordered by physicians in some parts of America, account for the frequency of chronic diseases of the liver. Some physicians of Virginia have observed that such diseases were less frequent before it became customary to prescribe large doses of calomel in autumnal fever.

Oppolzer has remarked that many cases of supposed syphilitic liver, were such as had been submitted to mercurial inunction.

Virchow is in doubt as regards amyloid degeneration of the liver, whether it is caused by mercury or the affection of the bones, but does not consider it syphilitic. *Niemeyer* mentions mercurialism as one of the causes of fatty liver. *Crampton* speaks of enlargement and induration of the liver, caused by mercury. *Grau* describes two cases of mercurialism where enlargement of liver, jaundice and ascites were prominent symptoms. *Dekcere*, in his reports of the Hospital des Veneriens, speaks frequently of icteric coloring and pain in the liver, where *Mercury* has been used. *Cheyne*, *Hennen*, *Copelands*, and many others speak of jaundice after the use of mercury.

Overbeck found in his experiments that the microscope never revealed any change in the structure of the liver; but congestion of the organ and increased formation of bile were usually found.

Mosler, in experiments on dogs with fistula of the gall-bladder, found no increase of the secretion of bile, and no mercury was found in it. *Bennett*, in similar experiments on dogs, found that mercurial pills and calomel, in moderate doses, did not increase the secretion of bile, while in purgative doses it was diminished; that *Merc. corr.*, in moderately increasing doses, is not a cholagogue, while it diminishes the secretion of

bile when a sufficient dose is taken to disturb the system; that the sublimate can influence the secretion of bile with or without salivation or purgation. Although these experiments on animals, after a serious operation, may not hold good in their application to the human race, still they are to some extent of value. *Overbeck's* experiments on dogs show an increase of bilious excretion. The same result is produced in man by rather large doses of calomel, and medium doses of sublimate. But in fatal cases of poisoning by sublimate we find no bile, where there were frequent and bloody discharges. This has been observed in the cases previously reported (26, 27, 29, 33, 34, 35, 36, 43, 45, 48, 49, 52).

From these observations we can make the following deduction: If the dose of sublimate is enough to cause profuse and bloody discharges, the portal system is deprived of a large proportion of its blood. In consequence the liver receives a smaller supply of blood, and therefore secretes less bile. But this does not vitiate the experience of centuries, that mercury increases the biliary secretion, if given in moderate doses; and explains the apparently contradictory results of *Bennett's* experiments.

Among the symptoms of *Merc. viv.* we find: Liver congested and dark (7, 8, 9); liver congested (28); bilious vomiting (32, 38). Under *Merc. sol.* we find: Bitter taste, eructation; pain in region of liver and epigastrium; yellow stools; whitish stools; icterus with itching; yellow staining of under-clothes; (436, 453, 491, 500, 556, 557, 558, 1004, 1005, 1202).

Merc. corr. Liver enlarged and congested; gall-bladder full; gall-bladder empty; icterus; secretion of bile, extensive and more liquid than normal; enlargement of liver with pain, with pressure over it; chronic liver disease; yellow discharges; pruritus (34, 52, 54, 33, 41, 38, 260, 263, 310, 325).

Merc. dulc.—Icterus (2).

Merc. cyanat.—Bilious vomiting; bitter taste; liver enlarged; gall-bladder contains green, tenacious fluid (1, 3).

Cinnabaris.—Salivation; pain over liver extending over right chest; the pains are intermittent and relieved by bending forwards; nausea and bilious vomiting. In cases of poisoning

the same symptoms occur, but aggravated; violent vomiting and purging, and sensitive abdomen. In chronic cases (as in Idria) granulated liver is found.

1. HYPERÆMIA OF THE LIVER.

Kafka recommends *Merc. sol.* in congestive hyperæmia, occurring in hot weather, with diarrhœa and tendency to dysentery or icterus; also when there is malarial influence. *Hughes* uses *Merc. sol.* in subacute congestion, alternately with *Bryon.* *Bahr* thinks it more indicated in hepatitis. *Kreussler* uses *Merc. sol.*³⁰, for the following indications: distention of right hypochondrium, with pain; pain extending to shoulders; icterus with relaxed system.

2. HEPATITIS PARENCHYMATOSA.

Kafka uses *Merc. sol.* if there are pronounced icteric symptoms, enlargement and tenderness of liver. *Bähr* recommends *Merc. sol.* for the same local symptoms, and also of general symptoms, such as chills and fever, indicating the beginning of suppuration. *Hughes* employs *Merc. sol.* for congestion and suppuration; *Bryon.* for perihepatitis, and *Hepar sulph.* for metastasis. *Guernsey* gives these indications: "abdomen tense and sensitive, slimy and light-colored, offensive stools, salivation, offensive urine. *Jahr* gives *Merc. sol.* if *Bellad.* does not relieve, for pain in right side; bitter taste in mouth, thirst and loss of appetite; chills and icteric coloring. *Gerhardt* adds to *Jahr's* indications: Enlargement and pain of liver, and bilious vomiting. *Schelling* mentions similar symptoms in an epidemic occurring in 1840. *Gerson* has used *calomel* with brilliant results in severe cases, with great general constitutional disturbance.

3. CHRONIC INTERSTITIAL HEPATITIS.

Cirrhosis of the Liver, Granulated Liver.—*Hermann's* observations in Idria give us indications for the use of mercury in cirrhosis, in its first stage of enlargement, not in the second, of atrophy. The main symptoms are: dyspepsia; constipation;

icterus; intestinal hemorrhage: ascites; cachectic appearance; hypochondriasis. *Cinnab.* and *Merc. viv.* seem most appropriate. *Kafka* advises symptomatic treatment. *Bæhr* merely mentions mercury in this disease. *Hughes* advises mercury and iodine, alone or in combination, in the first stage.

4. AMYLOID DEGENERATION OF THE LIVER.

The symptoms of amyloid degeneration of the liver, as described by *Kafka*, are analagous to those of mercurial cachexia. He recommends *Merc. sol.* in scrofulous, and *Merc. bin.* in syphilitic subjects. We should prefer metallic mercury, as this most frequently causes the amyloid condition.

5. ICTERUS.

Kafka recommends *Merc. sol.*³ every 2 to 3 hours, in icterus *gastro-duodenalis*, with pain, chills and fever, drowsiness, and sometimes diarrhœa. In *icterus neonatorum*, he uses *Cham.*³, *Merc. sol.*³, *Rheum.*³ *Bæhr* uses mercury without regard to the presence of fever, when the biliary secretion is not entirely suspended, and the symptoms of acute gastric catarrh are prominent. He considers it especially indicated in *icterus neonatorum*. *Hughes* has never had occasion to use any other remedy than mercury in icterus. *Guernsey* gives mercury in *icterus neonatorum*.

Jahr gives Aconite in recent cases, if there is fever, followed by mercury. If there has been no fever, he first uses China for eight days. *Hartmann* considers mercury a specific in icterus.

6. CHOLELITHIASIS.

Mercury has no influence in arresting the formation of gall-stones, neither does our *Materia Medica* give us indications for its use during the colic attending the passage of stones. But *Dr. Gorges*, of Carlsbad, who sees from 20 to 25 such cases every year, declares mercury the best remedy, after Bellad.; even when morphine has failed to relieve in allopathic hands.

DISEASES OF THE PANCREAS.

Our knowledge of the diseases of this organ and their diagnosis is so limited, and the condition of the gland, on examination after mercurial poisoning, has been so neglected, that we have but little knowledge of the extent to which it is influenced by mercury. According to the records, after *Merc. corr.*, the pancreas was very large, hard and of yellowish color (34). *Merc. cyanid.* (1): The pancreas is large, hard, dry and easily torn. Some of the older physicians report cases of pancreatic disease, in syphilitics, who were using mercury, where it is difficult to decide whether the drug or the disease was the exciting cause. The proper inference seems to be, that acute inflammation of the pancreas is caused by mercurials, while chronic disease is of syphilitic origin.

The symptoms of pancreatic disease and the effects of mercury will be found to correspond in the following forms: emaciation; salivation, not constant; fatty stools, common in pancreatic disease, but not caused by mercurials; icterus, a common symptom, caused by the pressure of the enlarged gland upon the ductus choledochus; *epigastric pains*, caused by pancreatic disease and by all mercurials, but no doubt often to be located in the stomach. Finally, melancholia and desire to commit suicide.

Bæhr mentions *Atrop. sulph.* as very efficacious in one case, and also recommends *Mercur.* and *Sulphur.* *Hughes* recommends *Iodine*, *Mercur.* and *Iris.* *Reil* considers the milder preparations, *Merc. sol.* and calomel, specific in diseases of the pancreas. In acute and subacute inflammation we should recommend the sublimate.

DISEASES OF THE RESPIRATORY ORGANS.

1. CORYZA.

This disease is too slight to call for much discussion. We merely refer to *Hering's* indications for *Mercur.*: common colds, with sneezing, running from the nose, with irritation, thirst, fever, chills, sensitiveness to cold. *Trinks* recom-

mends *Merc. iod.* when the larynx, trachea and bronchi are affected, with or without fever; hoarseness, tickling, dry cough, with or without fever. In these cases we prefer *Merc. bin.*, 3-6.

Merc. iod. should be used in scrofulous and syphilitic ozæna, before *Mercur.* or *Calcar.*

2. EPISTAXIS.

Among other hemorrhages, epistaxis is often found in cases of slow mercurial poisoning. *Hering*, *Kafka* and *Juhr* recommend *Merc. sol.* where the blood coagulates quickly, the fibrine of the blood being increased in acute poisoning. *Kafka* also uses mercury in epistaxis, in cases of Bright's disease and scurvy. *Juhr* speaks of it for the epistaxis of children troubled with worms, or if it occurs at night.

DISEASES OF THE LARYNX.

Dietrich and *Falk* cite as the effects of mercury: peculiar roughness and hoarseness of the voice, as if the glottis were swollen; also in old cases, laryngitis and ulceration of the larynx; also paralysis of the laryngeal muscles with complete aphonia. This may be merely local, or accompanying mercurial paralysis of other muscles. According to *Halford*, laryngitis, tracheitis and laryngeal phthisis is not uncommon among operatives with mercury. Among the results of *Merc. viv.* we find (in 7, 8 and 9), congestion of the mucous membrane of the larynx and trachea; local congestions (28); tubercular ulcers (37); hoarseness and cough, with fever (32). *Merc. s.l.* gives no decided laryngeal symptoms.

Under *Merc. corr.*, we find: congestion of the epiglottis and larynx; painless exudation over mucous membrane; hoarseness and aphonia; violent pain, tickling, convulsive cough, with expectoration of bloody mucus (27, 32, 42, 60, 14, 33, 48, 34, 61). *Buchner's* symptoms are: irritation of larynx; burning in trachea; aphonia for two hours in the morning; evenings, irritation in larynx and cough; dry and spasmodic cough, with tough mucous secretion.

Merc. præcip. rubr., larynx inflamed (2).

Cinnabar.—The principal symptoms are : cough, with tickling, dryness and burning; hoarseness towards night. In cases of poisoning: irritation of larynx, swelling of epiglottis; hoarseness and aphonia; cough worse at night; expectoration at first clear, then gray, purulent, offensive and sometimes bloody.

Kafka recommends *Merc. sol.* for hoarseness with coryza; or if complicated by aphthæ or syphilis; in acute laryngitis with cough at night; also in chronic cases. He also uses it in *laryngeal perichondritis*, and in affections of the epiglottis; also in aphthous and syphilitic ulcers of the larynx. *Bähr* uses mercury principally in the early stages of laryngitis, when there are chills and fever; local tenderness; cough worse at night; catarrhal affection of nose and mouth; hoarseness and aphonia. In chronic cases he only gives mercury for occasional aggravation.

Hughes recommends iodine and mercury in combination for syphilitic affections of the larynx. *Jahr* uses mercury for hoarseness with coryza, cough and tickling in larynx, increased in cool, damp weather; in catarrhal hoarseness and aphonia. *Lobthal* uses mercury in chronic hoarseness with salivation and tendency to perspiration. He recommends *Merc. sol.* in phthisis of the trachea and larynx, with complete aphonia, regurgitation of food; expectoration, emaciation and colliquative sweats.

In reviewing the experience of our writers, it would seem as if *Merc. corr.* had been too much neglected. It deserves to be placed in the first rank in acute affections of the larynx. In chronic cases, *Cinnab.* and *Merc. viv.* should be considered. In slight catarrhal cases, *Merc. sol.* would suffice, while *Merc. viv.* would be called for in aphonia with paralysis of the laryngeal muscles.

DISEASES OF THE BRONCHIAL TUBES.

1. ACUTE AND CHRONIC BRONCHIAL CATARRH.—WHOOPIING COUGH.

Falk mentions, among the effects of mercury: bronchitis, tracheitis and tracheal phthisis; *Blacklock* mentions bronchor-

rhœa; *Gilbert* and most other authors speak of obstinate catarrh. *Hirt* says that workers in mercury suffer from attacks of catarrh of the respiratory organs, from the slightest causes.

After inunction with *Merc. viv.*, we find the mucous membrane of the larynx filled with blood (8, 9). After inhaling the fumes of mercury: congestion of bronchial mucous membrane, subacute bronchial catarrh, dry cough, pain in various parts of chest, inspiration interrupted; cough, with pain in left side and shoulders; violent cough and expectoration (phthisis); suffocative catarrh; violent cough with pain (28, 33, 36, 53, 37, 39, 47).

Merc. sol. causes the following symptoms: cough with raising; dry cough, with tickling at upper part of chest, aggravated by talking; violent cough at night, with irritation as if from the stomach; dry cough with pain in back; irritating at various periods of the night, with pain; *tendency to vomit while coughing*; shortness of breath while walking, or mounting stairs, and after eating; pain from front to back of chest, worse on walking, and preventing taking a deep breath.

Merc. corr.—Mucous membrane of trachea and larynx covered with bloody mucus; the trachea rose-colored, the bronchial tubes violet; mucous membrane of trachea inflamed and covered with bloody foam; the entire mucous membrane congested, of various colors, and the smaller bronchi filled with bloody, foamy liquid; respiration impeded; oppressive; dyspnoea; cough; rattling over chest (14, 27, 32, 42, 52, 60, 18, 2, 31, 32, 34, 42, 24, 45, 48). *Buchner* cites similar symptoms.

Cinnabaris.—Cough worse at night; expectoration at first clear, then opaque, later gray, purulent, offensive and streaked with blood; pain under sternum. *Midhardt* cites: Cough worse when lying down, and dry; dyspnoea without cough.

Kafka gives *Merc. sol.* in *Bronchitis with Fever*, after *Acon.*; if the cough is troublesome at night and the patient perspires. If there is besides intestinal catarrh, with violent pain and dysenteric stools, he also gives *Merc. sol.* (Sulphur, Pulsat, Bellad.); in severe cases *Merc. corr.* (or Colchic.). He also gives *Merc. sol.* in *Chronic Bronchial Catarrh* with night cough and perspiration. In *Diphtheritic Bronchitis*, *Merc. sol.* comes after

Arsen. In *Whooping Cough* he recommends *Merc. sol.* if the children cough much at night and are excitable, with night-sweats, painful, green discharges and bleeding from the nose, eyes, or ears. Also in the tickling cough of children during dentition, with swelling of the gums and salivation; when the cough is brought on by cold and is worse at night. Also in the following complications: coryza, catarrh of larynx, mucous rales and thirst, influenza and greenish discharges, with pain.

Bæhr thinks *Merc. sol.* more appropriate for children and adults than for the bronchitis of the aged. The fever should be high, with tendency to sweating and chills, if exposed to change of temperature; if the stomach and the digestive organs are implicated, and the tongue coated. The most important local symptoms are: dryness; hoarseness; pain in chest; cough dry and worse at night; with slight, tough, yellow, or bloody secretions; desire for cold drink, which aggravates the cough.

In *Chronic Bronchitis* he uses *Merc. sol.* for aggravations. For *Whooping Cough* he does not mention it. *Hughes* employs *Merc. corr.* in bronchitis accompanying Bright's disease; *Merc. sol.* in chronic bronchitis with purulent discharge.

Trinks recommends *Merc. sol.* in *bronchitis* when inflammation is at its height. *Schrön* speaks highly of it in the exacerbations of chronic brouchitis, when the mucous membrane is much inflamed and swollen, causing great dyspnœa.

Hering uses *Merc. sol.* in *Whooping Cough* when two attacks occur at night, close together, followed by a long free interval; if the child bleeds from the nose while vomiting; when there is night-sweat and there had formerly been worm symptoms. *Bönninghausen* thinks *Merc. sol.* indicated in spasmodic cough accompanying a severe form of influenza. In acute bronchitis we should prefer *Merc. corr.* according to *Bæhr's* indications, also in the spasmodic forms of cough.

2. ASTHMA NERVOSUM.

Dieterich describes *Asthma Mercuriale* in the following terms: The patient feels a constant pressure on his chest, with dyspnœa and noisy respiration. This condition may last for several months. Then comes attacks, a few hours after sunset, of dif-

ficult breathing, like real asthma. The patient feels his chest contracted; he is obliged to sit with the body bent forward, and breathes with the assistance of the abdominal muscles. The face is never swollen or cyanotic, as in other forms of asthma, but pale and sunken, with an expression of anxiety. The skin of the extremities is cool, the heart beats with a wave-like impulse, the pulse is contracted and small. At the end of the attack perspiration appears on the face, and there are other signs of the intermission of the attack, but no expectoration. The disease is caused by direct inhalation of the fumes of the metal, and therefore occurs among laborers in quicksilver works, gilders and looking-glass makers. The attacks are worst in the spring and autumn, especially at the time of equinoctial storms.

Scopoli's description of this disease among the workmen in Idria is given elsewhere.

Hulford says that, after death, the lungs are found filled with serous, bloody fluid. Many other authors describe this form of asthma.

An exquisite case of *Ramazzini's*, described under *Merc. viv.*, No. 19, lasted eighteen years, but without cough or expectoration.

The symptoms of acute poisoning with *sublimite* are not those of asthma, but show affection of the larynx, bronchial tubes and lungs; also peritonitis.

Cinnab. has some symptoms of asthma: difficult breathing, oppression of chest after speaking; body bent forward to assist in breathing; on the first and eighth day attacks occur mostly in the forenoon. Awakening after midnight from inability to breathe.

The cause of this form of asthma is to be found in disordered action of the diaphragm. In *Ramazzini's* case this muscle must have been paralyzed, as the asthma was continuous.

In *Dieterich's* and *Scopoli's* cases there must have been spasm of the diaphragm, judging from the character of the respiration and the patient's enforced erect position. In cases of acute sublimite-poisoning, singultus often occurs, indicating clonic spasm of the diaphragm.

The occurrence of both spasm and paralysis is easily explained. If the phonic nerve is merely irritated at its origin, spasm is produced; if there is pressure upon it from an exudation, or if it becomes atrophied by the gradual sclerosis of the brain and spinal cord, then paralysis takes place. The peculiar manner of breathing confirms our explanation. That irritation of the par vagum is not in play, is shown by the fact that the activity of the heart is increased during the attack.

Kafka, *Bahr*, and *Hughes* do not mention mercury in the treatment of asthma. *Jahr* thinks its use not yet sanctioned by experience or the *Materia Medica*, but advises it when there is congestion of blood in the chest; where there is irregular menstruation; in asthma humidum; when caused by the vapors of copper or arsenic; also for dyspnœa. with offensive breath, worse at night or when mounting stairs.

Mercur. might be in place in the treatment of asthma if there was spasm or paralysis of the diaphragm; to be given in the higher attenuations, during the interval between the attacks. Nocturnal attacks indicate *Merc. viv.*; occurring during the day, *Cinnab.* In paresis of the diaphragm with continuous dyspnœa, *Merc. viv.* might be tried if other remedies are ineffectual. Paleness of the face would also be an indication for mercury.

DISEASES OF THE LUNGS.

1. PNEUMONIA.

Merc. viv. causes hypostatic anæmic infiltration of the lungs in animals in two experiments (3 and 5). In case 49, a man of 64, long exposed to the influence of mercury, after the burning of a keg which had contained the metal, was first attacked with croupy stomatitis, and died, on the twentieth day, in the third stage of pneumonia. In case 55, the lungs were hepaticized, not crepitant, and filled with dark blood; although there had been no signs of pneumonia during life. In three cases of acute poisoning (7, 8 and 9), the lungs were very hyperæmic.

Merc. sol.—Besides the bronchial symptoms already cited, the following deserve notice: Pain in chest on motion, while

sneezing or coughing, extending to back ; pains in various parts of the chest while breathing, with impeded respiration.

Merc. corr.—In animals the following symptoms were found : lungs infiltrated, filled with dark blood, inflamed, sinking in water ; lungs filled with small tumors, some inflamed, some ulcerated and gangrenous ; dyspnœa and pain in lungs (5, 7, 9, 10, 11). In man we find : lungs congested ; bases of both lungs inflamed ; pain in side. Other symptoms were bronchial, and have been noted above. *Cinnab.* gives symptoms of pain in the chest, but it does not appear that they had any connection with pneumonia. In animals the lungs were congested in one case and inflamed in another.

Kafka says that many practitioners give *Merc. sol.* in pneumonia, during the stage of purulent infiltration, occurring in reduced, scrofulous or tubercular subjects ; with profuse sweats, emaciation and weakness. He much prefers *Kali iod.* or *Sulphur*, as he thinks mercury favors suppuration and leads to the formation of cavities(?).

Bæhr, on the other hand, says : “ *Mercury* is one of the remedies more often recommended than prescribed, as we think unjustly. Certainly it is not called for in simple cases, but is frequently most useful in complicated ones. Our *Materia Medica* gives us sufficient indications for the use of mercury in pneumonia. We do not agree with *Müller* that it is only indicated in chronic cases, where hepatization of the lung persists, with absence of expectoration ; with dry cough, continued fever and debilitating sweats, and diarrhœa. No doubt it is indicated here, but also in other forms. We have of late often used it in cases of pneumonia complicated with bronchitis. Such cases have been prevalent with us of late in the shape of an epidemic of influenza, with high fever, pulse 120 to 150, great prostration of the nervous system, cough and sometimes bloody expectoration ; head symptoms ; sopor and delirium. On auscultation, hepatization was discovered. The general symptoms so much resembled those of typhoid, that many physicians made a mistake in their diagnosis. Mercury was the principal remedy used by homœopaths during this epidemic. We had no fatal cases, while a number of deaths occurred under allopathic prac-

tice. Mercury is also indicated in catarrhal, lobular pneumonia, occurring during bronchitis or whooping-cough. In tubercular pneumonia mercury cannot be recommended. Our favorite remedy has been *Merc. sol*. Its effect has been so satisfactory that we have hesitated to use other preparations. We have used the 3d or 4th trituration exclusively; higher attenuations are useless. In conclusion *Bahr* thinks mercury indicated at the beginning of the third stage of pneumonia, unless there is great prostration. He thinks it may be used in the second stage of the croupy pneumonia of children; also in pneumonia complicated with bronchitis, when there are chills, high fever and copious sweats; also if there is congestion of the liver or jaundice.

Guernsey uses mercury in the pneumonia of children if there is great thirst, fever, salivation and sweat. *Jahr* considers mercury an important remedy in pneumonia, complicated with bronchitis; if there is copious, purulent and bloody secretion; also in pleuro-pneumonia.

Hartmann recommends mercury on similar indications; also if there are sharp pains in the chest and dyspnoea.

Trinks found the remedy very useful after the fever had been quelled by *Acon.*, when the pain, dyspnoea and perspiration continued. *Buchner* uses mercury in asthenic, rheumatic and tubercular subjects, also in syphilitics. In these cases there is great prostration and also violent general symptoms; much local pain and cough. *Arnold* thinks *calomel* indicated if the inflammation extends to the liver.

As *Merc. corr.*, in cases of acute poisoning, has been found to produce pneumonia, it would seem to be the most proper remedy in genuine croupy pneumonia, after *Acon.* Unfortunately no record of its use can be found in our literature. In fact, in normal cases of pneumonia, mercury would scarcely be needed. We find the proper remedies in *Acon.*, *Phosphor.*, *Byron.*, *Iod.*, *Sulphur*, etc.

2. HÆMOPTYSIS.

Henna and *Scopoli* are the only writers who mention raising of blood among the diseases of mercury workers. In case 28

Merc. viv. caused violent hemorrhage. Among the symptoms of *Merc. sol.* we find: bloody expectoration during exertion; also while lying down. Raising of blood from *Merc. corr.* is mentioned by *Quain*, *Girtanner*, *Blacklock*, *Colson*, *Wibmer*, *Orfila*, etc., but the blood probably came from the vessels divided in tracheotomy. *Bähr* recommends mercury when there is also catarrh or congestion; *Jahr* when the amount of blood is slight. J. B. Müller, of the hospital in Sechshaus, uses *Merc. sol.* in hæmoptysis with congestion, in the first stages of consumption, or after discharge from a cavity in the lung. These are the only records found in our literature. Mercury seems to be indicated for moderate expectoration of blood, during bronchitis, or in tubercular, serofulous, or scorbutic subjects.

3. PULMONARY TUBERCULOSIS.

Pope, *Sundelin*, *Burdin*, *Mair*, *Hennen*, *Scopoli*, *Halford*, and many others have observed that workers in quicksilver are very subject to phthisis. The statistics of *Kussmaul* show that of 56 deaths among people of this class, 39 or 40 were caused by consumption. This fatal result is not owing to the effect of inhaling the dust or rapid changes of temperature, because a number of cases are on record where consumption ensued only from the poison being inhaled. *Merc. corr.* is said to have similar properties by *Quain*, *Hunzsky*, *Richter*, *Brombilla*, *Payne*, *Jeannot de Longrois*, *Owen*, *Hartmann*, *Orfila*, etc.

It seems therefore that mercurials are indicated in that form of chronic catarrhal pneumonia which is now considered identical with phthisis, tuberculosis, or pulmonary consumption. We believe that in this disease all preparations of mercury in small doses are indicated according to the nature of the symptoms. Thus, in affection of the larynx, *Merc. iod.* would be indicated; for diarrhœa with tenesmus, *Merc. corr.*; for affection of the lymphatic glands, *Calomel* or *Merc. iod.*; while in ordinary cases, *Merc. sol.* or *Merc. viv.* should be used.

Kafka objects to the general use of mercurials in phthisis, because they favor suppuration and the formation of cavities in the lungs. He only recommends *Merc. sol.* for bloody discharges, and *Merc. corr.* in severe cases, with tenesmus.

Hughes and *Bähr* do not mention mercury in this disease, and *Jahr* places it among the less important remedies. *Siebur* has used *Merc. sol.* with good effect, after Sulphur, or in alternation with it. *Schmidt* has found *Hepar sulph.* and *Merc. sol.*⁶ in alternation very useful for copious expectoration.

Hartmann recommends *sublimite* in phthisis florida, where there is great dyspnœa and suffocation; hoarseness, deep cough, without expectoration, worse at night; dryness of throat and thirst; quick pulse; cold feet and frequent sweating. *Cl. Müller* has found mercury useful for night-sweats. *Merc.*, *Ferrum*, and *Iodine*, with cod-liver oil as a nutritive agent, have been the most useful remedies in his hands.

On reviewing the opinions of authors, we find that those using low attenuations are not satisfied with the results obtained from treatment with mercurials; while others using higher dilutions are pleased with their effect. It would seem, therefore, that the higher dilutions should be used in phthisis.

DISEASES OF THE PLEURA.

PLEURITIS.

Merc. viv.—In Overbeck's experiment, No. 3, we find a voluminous pleuritic exudation in the right thorax. *Scopoli* cites a case where pleuritic effusion was found after death, but it is uncertain whether mercury was the cause of it.

Merc. corr. gives us, in case 38, about two ounces of effusion into the pleural cavity; in 52, pleuritic adhesions; in 4, pain in side after external use. The subjective symptoms of these remedies have been already enumerated.

Kafka recommends *Merc. sol.* when there is abundant sero-fibrinous exudation, with sharp pain in the infra-clavicular region. *Bähr* thinks that the value of mercury in pleuritis has not been generally appreciated by physicians, although our provings show that it is often indicated. By analogy we can reason that it is as useful here as in peritonitis, as mercury has a special affinity for serous membranes. It is indicated when there is a tendency to suppuration, when there are chills and

severe fever, and profuse perspiration, with catarrh of stomach and bowels, and slight icteric symptoms. In *pleuro-pneumonia*, with considerable exudation, mercury is one of our best remedies; also in epidemic pleurisies, whether rheumatic or in connection with bronchitis.

Schilling lauds the value of mercury in inflammation of the pleura, occurring epidemically in the spring of the year, with pronounced bilious symptoms, high fever, local pains, bloody expectoration, and frequent sweating. *Eidhur* uses *Merc. sol.* in pleuritic exudations, if they are not removed by Sulphur.

DISEASES OF THE HEART AND BLOOD-VESSELS.

Kreysig speaks earnestly of the debilitating effects of mercurial treatment upon the circulation; and *Paræus* already notices that aneurisms were common among those who had been under the influence of the drug. *Hartman* mentions affections of the heart and blood-vessels among its later effects. Among subjects of mercurial treatment *Albertini* observed in one case, violent palpitation, in another, aneurism, and, in a third, dilatation of the heart and dropsy of the pericardium, ending fatally.

Among more modern observations we find under *Merc. viv.*: palpitation, in 34 and 35; blood spread over the endocardium (28). From *Merc. corr.* the following was observed in animals: mitral valve bright red (6); tricuspid valve covered with small points of bloody exudation (7); endocardium of both ventricles red and inflamed; red spots upon some of the columnæ carneæ (8).

In man: fluid in the pericardium, serous and bloody; inflammation of the endocardium and internal coat of large arteries; spasmodic, wavy, trembling palpitation; souffle at base of heart, marking first sound, increased action of heart (38, 12, 14, 34, 35, 43, 56).

Among *Buchner's* symptoms are: restlessness and anxiety, inflammation of lymphatics from external use. *Kreysig* observes abdominal pulsation.

Merc. sol.—Palpitation (1218); much anxiety and congestion at night (1225).

Cinnabar.—Ten minutes after taking the 14th dilution, violent pain in cardiac region, with dyspnœa; pain on breathing, extending from heart into the left arm. In cases of poisoning from Cinnabar we find: Violent palpitation, worse when lying down, or when dreaming; pain in upper part of right lung; also in the region of the heart, and extending into left arm.

Kafka does not speak of Mercury for peri- or endocarditis or valvular disease; but he uses it in nervous palpitations, congestive, or caused by worms; or if there is congestion of the spinal marrow, or disease of the womb. He also speaks of it in the treatment of peritonitis, aneurism, hyperæmia and neuralgia; also in lymphangitis, if the pain is worse at night.

Behr does not consider Mercury a remedy for the heart; and thinks it is indicated only for pericarditis, during the course of acute rheumatism or small-pox. *Jahr* mentions it among the remedies for palpitation. *Russell* is inclined to use *Mercur.*, after *Acon.* and *Spigel.*, in acute pericarditis, on account of its well-known power to prevent plastic exudation in serous membranes.

It should be taken into account that the earlier observations were made at a time when the diagnosis of diseases of the heart was but little understood. In more recent observations we find symptoms of peri- and endocarditis in living and dead subjects. We should use *Merc. corr.* after *Acon.*, *Spigel.*, *Bryon.*, *Iod.*, etc., had been used without effect, especially in cases of acute articular rheumatism, with nocturnal pains and sweats, thirst, great anxiety, irregular pulse, chills and fever, coated tongue, diarrhœa and scanty urine.

DISEASES OF THE URINARY ORGANS.

DISEASES OF THE KIDNEYS.

Merc. viv.—*Overbeck* reports: kidneys large, congested epithelium and cylindrical cysts (5); pyramids dark red (6); epithelium fatty (3); cortical substance yellow (4); retention of urine (1, 2, 4, 6); urine contains large quantities of albumen, and sometimes bile (5). *Overbeck* is of opinion that in these cases the mercury caused congestion and catarrhal inflammation of the

kidneys; but their condition was not equivalent to the appearances found in the second stage of Bright's disease.

In man, many authors have noticed increase of the urine after the use of mercurials (*Dieterick, Cartheuser, Schlichting*). *Löwenhardt* records increased secretion of urine with the presence of a large quantity of albumen. *Reichenbach* witnessed the same after the application of a mercurial plaster over the epigastrium.

Kussmaul believes that, in these cases, the presence of albumen in the urine is owing to a mercurial catarrh of the kidneys. That mercury can cause parenchymatous nephritis, or fatty, amyloid or cystic degeneration of the kidneys, has not been demonstrated. The disease of the kidneys, found after death in mirror manufacturers, was always accompanied by tubercular disease of the lungs. The amyloid degeneration of the kidneys, occurring in syphilitics who had been treated with mercury, is caused, according to Virchow, not by the disease, but by the mercury or the affection of the bones.

Bürtels treated a case of hereditary syphilis with mercurial inunction. After a certain time albuminuria was detected; but he denies that this was owing to the mercury, because its use had been suspended for several months before the appearance of disease of the kidney. But it is a question whether the action of mercury is only transitory. Older English writers (*Wells, Blackall*) have ascribed albuminuria to the abuse of mercurial treatment. *Ayres* found the following changes after the use of mercury: urine watery, phosphates increased; urea, uric acid, mucus and alkaline salts diminished.

In cases of poisoning with *Merc. viv.* we find: kidneys filled with dark, foamy blood; kidneys slightly granulated and atrophied; fatty degeneration of supra-renal capsule in a case of phthisis; right kidney hypertrophied, the left atrophied, the pyramids scarcely to be recognized; albuminuria with dropsy; urine scanty, dark-colored, albuminous, sp. gr. 1.016; urea diminished; hemorrhage from kidneys (7, 8, 9, 28, 37, 34, 55, 36, 48).

Merc. sol.—In many cases frequent desire to micturate, with scanty passage of urine and irritation of the urethra; urine

dark and cloudy, also with sediment; *excessive* secretion of urine; small pieces of hardened mucus are passed with the water; urine of the color of blood.

Merc. corr.—Congestion and inflammation of the kidneys, ureters and bladder; deposit of pus in kidneys, with empty bladder; many red points in the cortical substance of the kidneys, and bladder much contracted; urine albuminous with epithelial cells and tubular casts; albuminous urine in several other cases; hæmaturia; scanty urine or retention, in many cases (14, 36, 38, 41, 52, 58, 43, 56, 59, 18, 30, 37, 38, 42, 45, 29, 35, 36, 38, 39). *Buchner* gives similar symptoms.

Calomel.—In animals, the cortical substance swollen and yellow, in contrast with the red medullary substance, the tubules of the former filled with fat-globules.

Merc. cyan.—The right kidney enlarged and pale (fatty infiltration); left kidney smaller and less pale; bladder contracted, containing little milky urine (1); retention of urine; urine containing many cylinders with granular detritus; no blood-globules but much albumen (2); urine light-colored but scanty (3).

Merc. bin.—Piercing pains in the region of the kidneys.

Cinnab.—Urine copious, with sediment, first whitish, then red.

Neidhardt, after using the 2d cent. trituration, was seized, in the night, with violent pain in the region of the kidneys, radiating to the loins and into the thighs; also increased secretion of limpid urine.

In reviewing the effect of mercurials, we find that small doses of the various preparations cause congestive hyperæmia of the kidneys. In large doses albumen appears in the urine, as in congestion of some duration.

The more powerful preparations, *Merc. corr.* and *Merc. cyan.*, give us all the symptoms of *acute parenchymatous nephritis*, with not only the subjective symptoms, but all the pathological appearances.

Symptoms of uræmia are absent in cases of poisoning, probably because death occurs too rapidly from affection of other parts of the system.

We see, therefore, that *Merc. corr.* and *Merc. cyan.* are true specifics for *acute parenchymatous nephritis*, according to the law of similarity, and are worthy to be placed by the side of *Canthar.*, *Tereb.*, etc.

Mercury does not seem to produce *chronic parenchymatous nephritis*, as no cases have been observed of atrophy of the kidney, with albuminous urine.

According to the similarity of symptoms Mercury might also be indicated in *interstitial nephritis*, and the following symptoms point clearly to its application: obstinate bronchial catarrhs, dyspnoea, especially at night; vertigo, uneasiness, paroxysms of headache, itching of the skin, muscular pains, sleeplessness, disturbed vision, digestive troubles (nausea, vomituration, dyspepsia), troublesome thirst, emaciation, anæmia and loss of strength, downheartedness and irritability; hydrops is mostly absent; twitching in solitary groups of muscles; the quantity of urine passed is greatly increased, especially during night; mostly albuminous urine, with solitary urinary cylinders (in short, all the symptoms of this disease enumerated by *Bartels*). Everything in relation to the pathological state (the shrinking of the kidney) has already been mentioned when treating of the *chronic parenchymatous nephritis*.

It is more than probable, that mercurial cachexia may cause *amyloid degeneration of the kidneys*. Of the most important symptoms of this disease we find under Mercury: copious discharge of a limpid, extremely pale, albuminous urine, with hyaline urinary cylinders; diarrhœa, vomiting. The cause, tuberculosis, syphilis, tedious suppuration, especially in consequence of caries and necrosis, would also suggest Mercury, though a cure is out of the question.

In the two cases, 14 and 41 (under *Merc. corr.*), where abscesses were found in the kidneys, the symptoms of these organs during life are omitted. In addition to these anatomico-pathological changes in the kidneys, found in *suppurative nephritis*, the following symptoms of Mercury, and especially of the corrosives, suggest its application in this disease: fever interrupted by shaking chills, loss of appetite, frequent mucous or bilious vomiting, diarrhœa, frequent and painful inclination to urinate;

urine containing but little albumen or pus; or anuria. Mercury also gives us the paralyses, which sometimes occur in chronic cases of renal abscess.

Although neither pathological changes nor subjective symptoms suggest the application of Mercury in peri- and paranephritis, according to its pathogenesis, still its well-known beneficial effect in suppurations recommends it in this disease.

Among several authorities who have used mercurials in renal diseases, we may mention: *Kafka*, who uses *Merc. sol.*³ in *croupous (acute parenchymatous) nephritis*, as soon as the fever has moderated and the pains lessened, with scanty urination, and blood-colored urinary sediment. It seemed to act very beneficially in these small doses, on the process of casting off the fibrinous cylinders, which were formed in large quantities by the croupous inflammation, without simultaneously producing a deterioration of the blood mass, as it is done by large and frequently repeated doses of calomel. But we will never witness any benefit when the inflammatory stage has passed and hydropic manifestations developed themselves; neither from Mercury nor from Kali hydriod., which *Kafka* gives for dark-colored urine, scantily and painfully secreted; not bloody, but rather with a yellowish-tinged sediment, with thirst and heat in the head. In *chronic morbus Brightii* he recommends *Merc. sol.* where albumen can be shown in the urine, and the disease has originated in catching cold or getting wet. It acts especially well, where the patient complains of dull or stitching pains in the kidneys, or where the renal region is sensitive to pressure; when the patient feels a constant inclination to urinate, but discharges only a small quantity of a dark color; when diarrhœa is also present, the mucous stool is bloody; stools preceded by pains in the umbilical region. According to the law of similarity it not only corresponds to the pathological process, but also to the anæmia, to the somatic and mental state; it acts in fact quickly, whenever cold is the cause, as it mostly produces a mild perspiration, followed by a steady amelioration. But only in our small doses can such a favorable turn be expected—for large doses give an opposite effect. Even where *Bright's disease* has already developed itself to a high

degree, and after having been subdued a sudden aggravation sets in with increased urinary tenesmus and scanty discharges, we may still expect a good effect from this remedy. Even in pulmonary tuberculosis we may be able to produce a retrocession of a dropsy from morbus Brightii, if we only take it in time; provided tuberculosis does not appear as galloping consumption. How frequently do we find such manifestations after catching cold: frequent inclination to urinate, scanty discharge, great lassitude, sleepiness, irritability, and simultaneously oedema around the ankles. We may expect to meet such a state when the patients sleep little in consequence of the severe cough, when they have had dyspepsia for a long while, sweat much at night or complain of an exhausting, tedious diarrhoea. With such symptoms Merc. sol.³ (or Phosphor. or Arsen.) will be indicated; but its action is in most cases only palliative, for the tuberculosis advances and the morbus Brightii develops anew. In the therapeutics of *nephritis suppurativa*, Kafka says: When the fever has diminished, but the patients still complain of dull pains in the renal region, aggravated by pressure and motion, with frequent tenesmus vesicæ and scanty discharge, we may expect that exudation has begun already in the renal parenchyma, in consequence of which the urinary canals become compressed and hyperæmic; and for such a state we always prescribe Merc. sol.³, a dose every two hours. After a few days the pains decrease, the urine flows more abundantly and free from bloody admixture, showing us a decrease of the compression and hyperæmia of the urinary canals. He recommends Mercur. in *colica renalis*, when, after the paroxysm is passed, dull pains continue in the renal region and the urine is still quantitatively diminished and bloody: symptoms of a remaining nephritis. He orders Mercur. in *acute pyelitis*, where the pains are dull and the fever not severe, but attended by bloody urine.

Bahr speaks thus about the use of Mercur. in *nephritis suppurativa*: There are no general indications, but according to the *Materia Medica* we find Mercur. indicated, when the nephritis passes into the suppurative stage, by the increased desire to urinate with a diminished secretion; urine saturated,

dark brown, mixed with blood; jumentous with white, flour-like, sediment, or with a white sediment, becoming flocculent and cloudy when stirred.

Mercur. also corresponds to the course of uræmia, as it may produce a state simulating typhus with severe convulsions. The difference between Mercur. and Bellad. lies in the circumstance that in the latter the convulsions set in rapidly and at the beginning of the poisoning; in Mercur., on the contrary, only after a longer intensive action of the drug, and it will be therefore indicated, where after nephritis has existed some time with decided formation of pus, symptoms of uræmia gradually develop themselves. It is also of importance what preparation of Mercury we use, and that one is to be chosen which shows most constantly the nephritic symptoms, namely the *Mercur. corrosivus*.

Even in severe cases of poisoning with calomel, or metallic mercury, nephritic symptoms are often entirely absent; whereas they are as characteristic in poisoning by Merc. corr. as the dysenteric diarrhœa. I also find among my pharmacodynamic records three autopsies after poisoning with corrosivus, containing such data, viz.: kidneys enlarged, dark red on incision, the pyramidal and cortical substance can hardly be distinguished (secretion of urine was almost totally suppressed). The second autopsy is that of No. 41, but Bæhr fails to quote the third one. We have thus clearly presented to us the picture of nephritis, from the first bloody exudation to the very formation of abscesses.

Hughes says: We possess in the corrosivus a homœopathic remedy for nephritis and albuminuria. Clinical experience has so far failed to give its place in the treatment of these diseases.

Jahr mentions Mercur., when the secretion of urine is too copious, too frequent, rare, diminished, dark red, dark brown, milky, sour smelling, fetid, jumentous, becoming murky, cloudy, bloody, flocculent; with a flour-like sediment, containing mucous threads, mucus or uric salts; also for tenesmus, for involuntary nightly micturition, where the urinary troubles are based on an inflammatory state; when stenosis, indurations, or thickening take place in the urinary organs, when the

urinary troubles are caused by catching cold, or by the abuse of alcoholic beverages; where there is constant nightly tenesmus with only stillicidium urinæ with burning, cutting pains.

Hering recommends Mercur. for constant strong desire to urinate, but only a trifle passes, especially when the patient at the same time perspires and the urine soon becomes jumentous and offensive.

Pope says: Mercur. causes an inflammatory affection of the kidney, and has at the same time decided relations to the skin, but the manifestations are less intensive than in other drugs; blood-globules in the urine contra-indicate its application, whereas pus is its chief recommendation. In far-advanced Brightian nephritis and consequent dropsy, Pope only expects benefit from Mercur. or Arsen., if anything can still benefit the patient.

Kidd finds the Merc. corr. only of benefit in the first stage of albuminuria, especially when the parenchymatous nephritis was caused by abuse of alcoholic beverages, by catching cold or by stagnation in the portal system. Especially where the urine contains fibrine and fat-globules, or where the pale urine is albuminous and passed in large quantities, or where a bilious diarrhœa and copious expectoration accompanies the diseased state.

Quaglio gives the corrosivus in the first two stages of morbus Brightii, where so-called stagnations in the portal system have preceded the disease; where the profusely secreted urine contains fat-globules; or where the disease is based on a syphilitic dyscrasia.

Reis, in Saarlouis, treated two cases of morbus Brightii complicated with dropsy, and where the urine contained large quantities of albumen, with Merc. sol.³, and cured his patients in a very short time. Arsen. failed entirely in the first case (*Hirschel's N. Z. f. h. K. XIII. 17*).

Schuessler gave a boy of four years, suffering from morbus Brightii, Merc. corr.³, 2 drops every two hours, and five days afterwards received the news that he was cured. (*A. H. Z., 77.*)

Cl. Müller says: Mercury produces an inflammatory state of the cortical substance with anasarca and slight albuminuria;

but the whole state is less acute and thorough than we find it in Tereb. or Digital., and the exudation of lymph seems to possess a more decided tendency to purulent degeneration. The presence of blood-globules in the urine in large quantities would contraindicate Mercur., whereas pus-globules strengthen its indications.

DISEASES OF THE BLADDER.

In acute and chronic cases of poisoning with *Merc. vivus*, we see hardly any symptoms of the bladder. In Overbeck's experiments on animals (No. 5) the urine contained mucous globules and crystals of magnesium and ammonium phosphate, such as we find in vesical catarrh; there was also a blenorrhœa urethræ, and the catarrh might have extended therefrom to the bladder.

Merc. sol.—*Hahn* gives us the following vesical symptoms: extremely feeble stream of urine; pressure on the bladder after micturition; urine with whitish flocks (mucus?); pieces of hardened mucus pass with the urine, like pieces of flesh; whole pieces of white filaments and flocks are emitted after the urine, without pain; inability to retain the urine when he feels the desire to urinate (other symptoms of the urine are found in the chapter on renal diseases).

Merc. subl. corr.—Redness of the mucous membrane of the bladder in No. 14. The dark blue color which the catheter took on after its introduction into the bladder, disappeared only after hard rubbing with chalk (ammoniacal urine, No. 49); bladder contracted (as in most cases), and in two places dark red (No. 50). From *Buchner's* symptoms: urine pale yellow, somewhat turbid with mucous flocks; after standing, a pale, grey sediment was deposited with a white layer on top of it; the urine, after standing, had a strong ammoniacal smell; sensation of urine in the urethra with scanty discharge; after a while no inclination with a full bladder; a sensation of fullness in the bladder after micturating. Hence we see that Mercury does not act as prominently on the bladder, as it does on the kidney and urethra. We find in two cases of poisoning with *Merc. corr.*, hyperæmia of the bladder, and in *Buchner's*

proving, mucus in the alkaline urine, as in vesical catarrh. The characteristics of the urine in the symptoms of the solubilis are all of a general character, but relate mostly to a vesical catarrh. Two symptoms suggest paresis of the sphincter, and one of the corros. paresis of the detrusor.

Kafka prescribes Merc. sol.³, a dose every one to two hours, in vesical catarrh, when the pains in the bladder are only slight or dull, but the tenesmus very great and the scantily discharged urine is mixed with blood. Cystitis, in consequence of extension of the inflammation of the urinary organs to the bladder, is ameliorated by Merc. sol. (also by Cannab. or Canthar.). He remarks about *chronic vesical catarrh*, that where we surmise ulcers in the bladder, we give Hepar 3 to 6, or Merc. sol. 3 to 6 (or Carb. veg.⁶), two doses daily for some time; and recommend strengthening diet for the marasmus. In *cystitis parenchymatosa*, as soon as chills set in simultaneously with retention of urine, it is advisable to examine the vesical region above the symphyses, as well as through the rectum or vagina, in order to find out whether a tumor is present. Should such a one feel hard to the touch, Merc. sol.³ (or Hepar sulph.³), a dose every two hours is indicated, in order to produce as quickly as possible the solution and absorption of the exudation. Merc. sol. is also our first remedy in *paresis of the sphincter vesicæ*, based on a rheumatic affection.

According to *Bahr*, Merc. sol. stands in close relationship to Coloc. in acute cystitis. He also mentions the excessive mucous discharge as characteristic of Mercury; also the severe fever with chills, the great painfulness of the vesical region to the touch, and perhaps also gonorrhœa as a cause. Whenever we find pus in the urine, Mercur. is far better indicated than Coloc.

DISEASES OF THE URETHRA.

Whereas we never find affections of the urethra mentioned in cases of poisoning of human beings with Merc. viv., we meet in Overbeck's experiments on animals (No. 3, 5, 6), blenorrhœa of the urethra. *Hahnemann* observed, in his allopathic practice, that gonorrhœa after the use of mercury, degenerates into

gleet, and those who are cured, again discharge a fluid. The soluble mercury gives us the following urethral symptoms: burning in the urethra when not urinating; burning in the urethra when beginning to micturate; in the morning, cutting when urinating. During micturition, at first burning then smarting pain, burning during micturition: bloody discharge from the urethra; gurgling in the urethra resembling stitches; more of a hammering than a stitching pain in the urethra; stitches in the forepart of the urethra between the acts of micturition; stitches in the urethra towards the abdomen, about evening; dull, stitching pain in the urethra; cutting, smarting pain in the whole urethra during micturition, especially towards the end of it, when the last drops pass off, with irresistible desire to urinate, frequently some urine passed involuntarily, before he was ready to micturate; a drawing-stitching in the urethra when not urinating; a greenish, painless gonorrhœa, especially at night.

As we treat also balanorrhœa in this chapter, we will mention these symptoms: titillation of the glans; itching-stinging in the gland, when pressing the part; itching of the glans after micturition; voluptuous titillation in the glans; swelling of the anterior part of the urethra, with suppuration between the glans and prepuce; the prepuce feels red and hot, and is very painful when walking or touching it; tearing, lancinating pain in the forepart of the glans, extending through the whole penis as far as the anus, sometimes as far as the groins: inflammation of the prepuce with burning pain; considerable swelling of the prepuce as if distended into a blister by water or air; swelling of the prepuce and inflammatory redness of its internal surface with great sensitiveness to pain; *balanorrhœa*; voluptuous itching on the surface and in the interior of the prepuce, so that he cannot help scratching; swelling of the prepuce with burning, smarting and redness, with cracks and rhagades on the internal surface, and a red, fine eruption on the surface; stitching-itching on the frenulum; painful erections.

In *Merc. corr.* we meet the following symptoms: scanty urine, burning when passing (No. 30); the catheter can only be introduced with difficulty, on account of the inflammation and

swelling of the urethra (49); the urine passes in drops and with pain (50). *Hahnemann* mentions: itching in the anterior part of the urethra; gonorrhœa, the discharge being first thin, then thick, finally smarting pain when urinating, with lancinations through the urethra. *Buchner's* proving shows: burning before micturition, less during, none after it; burning during micturition; considerable burning before urinating; after an embrace, burning lancinating in the anterior part of the urethra and sensation of strength and cheerfulness; burning in the glans at the mouth of the urethra; lancinations in the forepart of the urethra during an out-door walk, followed by itching in ano; severe itching at the mouth of the urethra, changing to smarting during micturition, with some stitches through the whole urethra; after micturition slight stitches in the forepart of the urethra and sphincter ani. Towards morning erections and desire for an embrace; very severe erections during sleep, continuing after waking up.

In *Merc. præc. rubr.*: pain when urinating, the quantity and quality of the urine being normal (No. 4).

Merc. cyan.: the semi-erected penis was of a dark brown color.

Cinnabaris.—According to *Hahnemann*: soreness in the urethra during micturition, although the urethra is not painful to pressure; swelling of the penis; jerkings in the penis; painful itching behind the corona glandis with exudation of fetid pus; small red spots on the gland; tearing stitches in the glans; red points on the glans, as if they would turn to pimples; in the evening, at the corona glandis, burning, lancinating, itching, not decreased by friction, but rather aggravated by it; redness and swelling of the prepuce, it looks sore with itching pains; violent erections in the evening in bed. *Neidhardt* adds to these: violent itching of the glans with profuse discharge of pus, friction relieves only for a little while, after which it returns with ten-fold severity; two small red spots on each side of the glans, exuding a large quantity of a lardaceous mass, looking like herpes præputalis; balanorrhœa; violent erections after midnight towards morning; on the seventh day a very violent erection, increasing nearly to priapism; several symptoms with erections suggest an increased sexual nisus.

Kafka: When the gonorrhœa is of a high grade, the discharge thick, the orificium urethra swollen, the glans dark red and swollen; when simultaneously the gonorrhœal secretion is in large quantities between preputium and glans; when the erections are very painful and urination combined with great tenesmus, we mollify such important manifestations either with *Merc. sol.*³, a dose every 2 to 3 hours (or with *Nux vom.*³, in solution, a dose every 2 hours). Where the urethritis extends to the surrounding cellular tissue or to the corpora cavernosa, thus producing hard circumscribed places adjacent to the urethra, we still adhere to *Merc. sol.*³ (or *Jod.*³) a dose thrice daily, and apply tepid moist poultices to the swelling, and sometimes we thus fully succeed in breaking down these tumors, and suppuration is prevented. *Phimosis* as well as *paraphimosis* and the *gonorrhœal bubo* indicate *Merc. sol.*, and in *prostatitis* we may use the same remedy, as soon as the pains decrease, in order that rapid dispersion may take place. When in the course of a gonorrhœa the seminal cord becomes sensitive and the testicle of the same side heavy and deeply dependent, a suspensory may be advisable, but we give him at the same time *Merc. sol.*³, to prevent an extension of the disease, and if this still takes place, so that with great sensitiveness to pain the testicle and epididymis feel hot and swollen, we rely on *Bellad.* or *Atrop.* to relieve the pain, and then give our *Merc. sol.*, in order that the exudation may be quickly absorbed. *Blenorrhœa oculorum* in the course of a gonorrhœa also indicates *Merc. sol.*³ (or *Hepar sulph.*³), a dose every 2 or 3 hours; where the eyelids are œdematous, the pains burning, the purulent secretion copious, and rendering the corners of the eyes and the surrounding tissues sore. In *gonitis blenorrhoica* *Merc. sol.*³ (or *Hepar sulph.*³) act better than any other remedy, where exudation shows itself above and below the patella. To reduce the hypertrophied places in *strictures of the urethra* without surgical interference, we may rely on Sulphur 6-30, and *Merc. sol.*⁶, especially where the gonorrhœal process is still present, where the urine shows catarrhal sediments, or where at the same time the bladder is thickened and shows itself prominently above the symphysis pubis.

Berhr gives during the first stage of a simple gonorrhœa, Merc. sol., as it contains every symptom of this disease: titillation in the urethra to the touch; when urinating, a voluptuous sensation in the urethra with violent sexual desire; greenish-yellow purulent discharge from the urethra with traces of blood; inflammation of the prepuce and glans, with balanorrhœa; small ulcers; constant inclination to urinate, with frequent and painful emission. The selection of Merc. is therefore purely homœopathic, but is not based, as Hartmann thought, on the similarity of the gonorrhœal and chancre-poison, for such a similarity does not exist. *Hartmann* complains that not many cases are cured by Mercury, a fact which we can easily understand, as this drug does not suffice for a cure, or at any rate could not effect one in a short time; for it is impossible to cut the disease short by internal remedies. But the majority of homœopathic physicians certainly speak favorably of Merc. in this disease, as long as inflammatory symptoms prevail. Even some complications may indicate Merc., as inflammatory infiltrations in the neighborhood of the urethra and prostate, and it is noteworthy that we never meet them, where the gonorrhœa was treated from the start with Merc. It also corresponds to chordee and to gonorrhœal buboes; and we shall be more successful in treating it if our doses are not too small (2d trit., one or two grains every morning or every other morning); but it is not advisable to continue the remedy longer than ten to fourteen days.

According to *Yeldham*, Merc. corr. is one of the best remedies in the earlier stages of the disease. He gives it in the course of the first week in acute cases, in alternation with Acon. every four hours, 5 drops of the 3d decimal dilution. These two remedies quiet the most severe symptoms, and open the way for other remedies. Where amelioration continues under the use of these remedies, he continues with them, where other manifestations do not suggest another remedy. His favorite preparation is the corrosivus. In cases of gleet, where Mercur. is indicated, Cinnab. acts most favorably. In orchitis he recommends Merc. corr. (and Sulph.) for the remaining swelling of the testicle, after the disease has run its course. In

prostatitis he prefers Acon. in alternation with Merc. for the first few days, then the latter alone, finally Pulsat. He also saw good effects from Tinct. Sulph. and Merc. corr. in alternation. In the treatment of strictures Mercur. also plays a prominent part (also Acon., Canthar., Nux vom., Sulphur), especially where there is a purulent discharge. In balanitis, washing the parts with Calendula is advised, and he gives, during the day, two doses Merc. corr.³, and in the evening a dose of Acon.

Attomyr gives the following indications for Merc. sol.: the gonorrhœa discharges very copiously at night a greenish secretion; painless gonorrhœa, præputial affections with phimosis, bloody pollutions.

Meyer uses Merc. sol. in all obstinate forms of gonorrhœa, where, after the first stage is passed, the discharge continues or is even increased; or where the inflammation is light or absent. Though he cured many cases with it, still he finds it impossible to give clear and strict indications. It does not correspond to the inflammatory stage. In gonorrhœa complicated with buboes, prostatitis, orchitis, etc., he witnessed the greatest benefit from this remedy, especially when the discharge still showed a greenish or yellowish color and purulent quality, though there was no ulcer in the urethra—which, if it existed, would furnish but another indication for this remedy. For phimosis with extensive œdematous swelling of the prepuce, after the inflammatory stage has passed, Mercur. is as useful as Cannab., where this secondary process happens during the inflammatory stage. In *gleet* he considers Mercur. especially indicated, where the discharge is still copious and consistent, of a yellowish or greenish color, and leaves such marks on the linen; showing itself not only in the morning, but at all times, and especially after a meal. The patient sometimes complains still of a slight pain when urinating, or solitary stitches pass through the urethra, or there is a momentary drawing in the urethra and groin; Mercur. either cures such a case alone or opens the way for Phosphor., which finishes the case.

Müller gives Mercur. before Cannab., where the gonorrhœa is complicated with violent redness and swelling of the urethra, with balanorrhœa or glandular swellings.

Quin uses *Merc. sol.* for phimosis and paraphimosis.

Finally, we may be allowed to give our own treatment, which we begin with *Cannab.*⁴ in alternation with *Merc. corr.*⁶ After the disappearance of all symptoms of violent irritation we rely on *Merc. sol.*³ Gleet hardly ever needs *Mercur.* except where other symptoms indicate it. In balanitis we prefer *Cinnab.*, in orchitis *Merc. bijod.*

DISEASES OF THE MALE SEXUAL ORGANS.

It is difficult to decide whether the orchitis, arising in the case of a gonorrhœa during the use of mercury, should be ascribed to the former or to the latter; but it is said that where mercury is to blame, the discharge continues, which is not the case in sympathetic orchitis.

Whereas in workmen in looking-glass factories the sexual nisus is decidedly increased, the Chinese believe that mercury destroys the virile power in both sexes. Their contradictory views, compared with the results of provings, lead to the conclusion that small doses of the metal and its preparations, though used for a long time, excite the nerves of the sexual organs, but large ones paralyze; still as the action of small doses accumulates, the virile power is sooner destroyed with laborers in mercury.

We find the following symptoms under *Merc. sol.*: sensation of coldness in the testes during the afternoon and evening, for fourteen days; previous to emission of flatulence, the swollen testicle is sensitive, but not painful; violent stitches in the scrotum; drawing and pressure in the testicles, the drawing predominates; drawing pain in the testicles and in the groin; drawing in the spermatic cord, at intervals; itching in the right testicle; spasmodic tearing pain, commencing between the testicles, extending into the penis and causing considerable itching in the ulcers. Emission of semen without any voluptuous dreams; imperfect erection with tension in the region of the genital organs; they are apparently occasioned by flatulence; emission during the siesta, followed by burning pain in the orifice of the urethra during micturition; painful erections; nightly emission of semen, mixed with blood; after having

had an emission during the night, he is cold all over early in the morning, but not weak; burning in the urethra of the male during an embrace; when walking, copious perspiration in and near the genitals.

Buchner's provings gave the following symptoms of *Merc. subl. corr.*: in the morning violent erections and great sexual desire; very violent erections during sleep (without pollution), continuing after waking up; during an embrace tardy and slow ejaculation of semen; fine but sensitive stitches in the centre of the left testicle, continuing the next day. *Cinnab.*: sudden electrical shock through the right testicle and in the seminal cord, in the evening; violent erection at night in bed; violent erections after midnight, towards morning; on the morning of the seventh day a very severe erection, increasing nearly to priapismus; profuse perspiration between the thighs; violent erections in the evening; after taking the drug every inclination for an embrace disappeared. Sexual desire on the slightest occasion; sexual desire in the afternoon, as if there would be a seminal discharge, but he could suppress the sensation; great desire for food and for an embrace; increased desire for coition with long-continued orgasm; for two days nearly irresistible desire for an embrace (seventh and eighth day). Frequently a platonic sexual love without any desire for an embrace (first and third day). Sudden paroxysm of mental erotomania (third day). Pollution of a large quantity of semen without any smell (eighth day). A daily pollution from the seventeenth to the twenty-third day; after several doses increased desire for an embrace with erections, continuing during the night.

Kafka gives us the treatment of orchitis gonorrhœica. In orchitis traumatica, when the inflammatory symptoms are subdued by Acon. and cold lotions, he relies on Merc. sol. or Arnica to produce the absorption of the exudations. In the pollutions of the onanists, as long as they look well yet, he saw satisfactory results from Merc. sol.³ when they complained of burning pains in the back, or when the pollutions happen without erections, or without any sensation of pleasure, or when the erections are painful and the ejected semen is colored

with blood; or when the patients complain after a pollution of icy-cold hands, during the whole day; feel no inclination to work and are very apathetic.

Bæhr remarks: During the first stage of orchitis most authorities consider *Merc. sol.* or *vivus* the best and safest remedy, and especially where the gonorrhœa is still recent, which produced the inflammation. He gives it steadily in one of the lower triturations till there is a decided decrease of the inflammation.

According to *Jahr* *Merc. sol.* is not only indicated in gonorrhœic and metastatic orchitis, but also in *erysipelas scroti* (*Bellad.*, *Rhus*, *Arsen.*). In satyriasis *Mercur.* holds a front rank, and *Jahr* mentions it among the remedies for the evil consequences of onanism, or where an embrace cannot be enjoyed without evil consequence: it is also mentioned among the remedies for excessive pollutions.

Hartman: *Mercur.* suits orchitis in consequence of gonorrhœa; and it even acts well when indurations of the testicles are present.

DISEASES OF THE FEMALE SEXUAL ORGANS.

Women, working in mirror factories, suffer according to *Kussmaul* frequently from *menstruatio parva* and *amenorrhœa*, or from *menstruatio nimia et irregularis*. We mostly find the menses scanty or absent, sometimes irregular, more rarely too copious and in short intervals. *Astruc* observed from abuse of mercury precocious or too abundant menses. *Richter* considers mercury contra-indicated during menstruation, as it may produce hemorrhage or leucorrhœa.

In cases of poisoning by *Merc. viv.* we find: *suppressio menses* (case 12); menstrual discharge for ten weeks (32); menses scanty, *amenorrhœa* (34); menses irregular and scanty, pale, only for a few hours (36, *albuminuria*).

Merc. sol.—During the menses anxiety; six days after the menses again a bloody discharge; the menses are too profuse and attended with colic; metrorrhagia of an old female, whose menstruation had ceased eleven years ago; metrorrhagia for three weeks; *suppressio menses*.

Merc. subl. corr., according to Buchner: After nineteen days menses with fluor albus; menses after eleven days; menses every two weeks; menses every two weeks three times in succession; menses three times in two months; menses anticipating; menses very copious during the first two days.

Cinnabaris.—Catamenia one day too soon. Several times observed.

Hence we may conclude that Mercur. after a few small doses increases and anticipates the menstrual flow; but where the poison acts for a longer period, the flow becomes irregular and scanty, according to the qualitative and quantitative degeneration of the blood. *Colson* observed from large doses menorrhagia and metrorrhagia, especially in women of more advanced age, amenorrhœa in young girls, a hint worthy of consideration in selecting the remedy.

Kafka recommends *Merc. sol.* in dysmenorrhœa from catching cold, in menstrual colic from neuralgia uteri, when there are tearing pains in hypogastrium; in neuralgia uteri from chronic uterine infarctions.

Jahr gives under *amenorrhœa* the following indications for *Mercur.*: rush of blood to the head with dry heat and congestions; leucorrhœa; œdematous swelling of the hands and feet or of the face; pale face with sickly features; *great lassitude and debility* with tremors and congestions after the slightest labor; irritability, she feels downhearted, queer and quarrelsome. He also gives *Mercur.* in scanty or too copious menstruation, when there is at that period rush of blood to the head or vertigo; when the eyes are affected, when menstrual troubles set in just before this appearance, or during the flow.

DISEASES OF THE OVARIES—OÖPHORITIS.

Neither *Merc. viv.* nor *sol.* give any symptoms relating to the ovaries. The painful sensations in the right side of the abdomen rather belong to the cœcum, where, in acute fatal cases of poisoning with preparations of mercury, deep anatomical changes are found.

Kafka: When the inflammation runs its course rather slowly and one or the other ovary is sensitive during an examination

per anum, and feels rather hard, we may suspect an inflammation of parenchyma, which yields best to Merc. sol. (Iod., Conium), three doses per day, and this remedy may also prevent suppuration or ichoration.

Bahr mentions Mercur. among the remedies for chronic oöphoritis.

Hughes recommends the corrosivus when the peritoneum is also affected, whereas the oöphoritis yields to Pulsat.

Jahr mentions Mercur. among the remedies for chronic ovarian affections.

Cl. Müller cured a case of chronic oöphoritis and peritonitis with Merc. sol.

We would prefer *Merc. corr.* where peritonitic manifestations show themselves, and *Merc. bijod.* where other symptoms lead to the selection of mercurials.

DISEASES OF THE UTERUS AND VAGINA.

Abortus is so easily caused by Mercur. that married women are not allowed to work in looking-glass factories. Women, treated with large doses of mercury during pregnancy, give birth to small babies or they loose them prematurely (Colson, Holcombe, Richter, Fallopiä, Sala, Mattioli and others). As we find cases recorded in older works, where abortus happened after a solitary dose or after a few doses of four grains up to pounds (Fallopiä, Sala, Frivierius, Merat, etc.) of metallic quicksilver, we cannot ascribe the action alone to the degeneration of the blood-mass and consequent hemorrhages and loosening of the placenta, nor to any direct action on the substance of the uterus; but we must suppose that the foetus is destroyed by the poison and then expelled. We know that even from a less intense action of Mercur. the nutrition of the foetus suffers, and that the infants are born small. We may therefore consider *Merc. viv.* the remedy in those rare cases of abortus, where this mishap has already frequently happened and the foetus appeared too small in comparison to the size of the uterus, or shows as cause of death symptoms of a disease, for which mercurials are usually prescribed, *e. g.*, hemorrhages (of the brain,

meninges, spinal cord, liver), inflammations of different organs, dropsies, rachitis and especially syphilis.

Hughes recommends it, where syphilis is the cause of repeated abortus, though the mother shows at the time no symptoms of the disease: a high dilution of *Mercur.* might favorably modify the nutrition of the foetus.

Merc. corr.—Congestion of the uterus and of the tubæ (14); bearing down pains in genitals, as during labor; clear, thin, mucous discharge from the genitals (after local applications, 15); uterus inflamed (35). *Hahnemann*: pale yellow leucorrhœa, of a disgustingly sweetish smell; aching pain, succeeded by pressing, on touching the os uteri during an embrace.

Merc. bijod.—Strong pressure in hypogastrium, sensation as if a prolapsus vaginæ and uteri would take place; uterus enlarged and congested.

In *malpositions of the uterus*, *Guernsey* expects a radical cure by internal treatment, which restores the elasticity of the ligaments, relaxed through some morbid states of the organism. Indications for *Mercur.* are: during every menstruation anxiety, red tongue with dark spots and burning, salty taste; morbid color of the gums; the teeth are dull; cold and clammy sweat between the thighs.

Jahr recommends *Mercur.* in prolapsus vaginæ. After the reduction of the prolapsed uterus *Mercur.* may be tried to prevent a relapse; especially there is also a chronic leucorrhœa suitable to *Mercur.* present. *Merc. bijod.* would be the best preparation.

Kafka recommends *Merc. sol.* in *acute catarrh* of the uterus with continual tenesmus vesicæ and ani, or even without the latter; when simultaneously the portio vaginalis is also affected, the discharge acrid and corroding and the vulva and inside of the thighs reddened; in *chronic catarrh* when granulating ulcers are present at the cervix uteri, which easily bleed.

Hughes with *Leadam* recommends *Merc. sol.* in leucorrhœa vaginæ, showing a chronic inflammatory state of the urethra.

Guernsey gives in acute and chronic leucorrhœa the following indications for *Cinnab.*: leucorrhœa, causing during its discharge a pressing in the vagina, and for *Merc. sol.*: leucor-

rhœa always worse at night, itching, burning, smarting, corroding with a sensation of rawness, but all symptoms are always worse at night; discharge of flocks of pus and mucus of the size of hazel-nuts.

Jahr mentions Mercur. especially for purulent, green, mucous, smarting and corroding leucorrhœa.

Hartmann recommends it in leucorrhœa with sensitive itching in the external genitals; considerable swelling and sensitiveness of the lymphatics, of the labia; inflammatory swelling of the vagina, which feels raw and sore, the discharge being purulent and corroding.

Kafka gives Mercur. in *parenchymatous metritis*, as soon as fever and pains decrease through Acon., in order to remove every remnant of inflammatory action in the parenchyma of the uterus, and to dissolve the plastic exudation, as only thus the formation of abscesses is prevented. In *chronic parenchymatous metritis*, the uterine infarctus, Mercur. aids the retrograde metamorphosis (also Iodum), when a considerable swelling of the uterus still remains after the removal of all pains and nervous symptoms. In *metritis parenchymatosa puerperalis* Merc. sol. is indicated, to soften the tumors in and around the uterus, formed by deposition of solid exudations or to break them down by suppuration.

Guernsey gives the following indications in *metritis*: lancinating, boring and pressing pains. Much perspiration, which, however, affords no relief. Moist tongue, often accompanied by intense thirst; she is worse throughout the night.

Hughes gives Merc. corr. (and Platin.) where long-standing congestions of the uterus produced a state of induration. In *cervico-metritis* he recommends Merc. sol. (or Arsen.) where we find ulcerations outside of the cervix and superficial; but he prefers the corrosivus where the ulceration penetrates the substance and the visible part of the orificium and cervix are swollen and indurated.

Jahr gives Merc. in endometritis, where the pains in the uterus are lancinating, pressing or boring, and especially when at the same time there is little heat, but frequent sweats and chills.

According to *Espenat*, Merc. bijod. is the most suitable prep-

aration in chronic metritis with prolapsus, hypertrophy, swelling, sensation of heaviness, heat of the uterus with drawing pains.

We prefer Merc. subl. corr. in acute parenchymatous metritis with peritoneal symptoms, on account of its rapid and energetic action: in chronic cases the solubilis suffices; where exudation prevails, we rely on Merc. bijod. or Cinnab. Where symptoms of metrophlebitis appear, Merc. cyan. is the remedy, as it (comp. poisoning, Case 3), causes phlebitis, also in phlegmasia alba dolens.

Kidd justifies the application of Merc. in *fibroid tumors of the uterus* thus: Mercury produces in its primary action an increase of fibrine in the blood, and therefore, also, an increased activity in the fibrous tissues and organs in the uterus. Mercury also causes an increased tendency to hemorrhages, and a muco-purulent discharge of the membrane lining the cavity of the uterus; Mercury, therefore, in uterine fibroids, moderates the hemorrhages and retards the progress. The corrosivus is preferable, especially where there is also a muco-purulent, exco-riating leucorrhœa. But it must be continued for several months (1-3 drops of the 2d dec., in a wineglassful of water, two or three times daily). Merc. bijod. suits more those cases where the tumor is of a stony hardness, and where there is little leucorrhœa. Homœopathic remedies act well for the absorption of smaller tumors, but after a lapse of a few weeks without any amelioration, we would advise recourse to mechanical means.

Kafka mentions Merc. sol. as a remedy which might diminish the excruciating pains at night in women suffering from *carcinoma uteri*. Helmuth hopes for some relief from Merc. (Staphis.) in *carcinoma uteri*, especially where the pains are severe in the bones of the pelvis and thighs, and where syphilis may be present. Guernsey finds Merc. indicated in *carcinoma uteri* with prolapsus vaginæ and where the inguinal glands are affected. In *hydrops uteri*: much sweating without relief; continued, short, exhausting cough, anxiety, in ulcerations with sensation of coldness in them.

In *nymphomania* we find these indications: the symptoms

are more constitutional than local; aggravation at night and in bed. In inflammations of the *external genitals*: sensation of rawness; long-continued itching of the labia; terrible itching, aggravated after micturition by the urine adhering to the parts, which she has to wash off. Sweat, which not only does not relieve, but she feels worse after sweating; worse at night; affliction of gums and teeth. In *erysipelatous vulvitis*: sensation of soreness, worse at night; in *exanthemata of the parts*: long-continued itching of the vulva, shortly before the menses; aggravated by every drop of urine passing over the parts. Pimples or tubercles on the labia, worse at night; in *chancre*s: Cinnab. with redness and swelling, Merc. jod. for painless chancres.

Kafka gives in *Catarrhus vaginæ acutus*, Merc. sol.³, where the hyperæmia is less intense, the discharge copious, acrid and corroding, with tenesmus urinæ and burning in the urethra and vagina. It acts well even after excesses in venere and onanismus, also in vaginismus, where the itching remains limited to the labia and introitus.

Espanet gives the following indications for Mercury in *nymphomania* and venereal excesses: the repeated shocks leave an involuntary trembling and great nervous debility, so that even nutrition suffers. Unbearable itching in the genitals, nearly driving her crazy; frequent sexual desire; burning during micturition, corroding leucorrhæa; dulness of the senses, apathy and irritability.

DISEASES OF THE MAMMÆ.

Merc. sol.: pains in both mammæ; unnatural swelling of the mammæ, especially of the nipples, which feel harder than usual; periodical pain in the mammæ, as if furuncles would form. In a puerperal woman, poisoned by corrosivus, the secretion of milk stopped in one breast; and three years after the poisoning milk appeared in that breast later than in the other one (Case 40).

Kafka gives Merc. sol.³ in inflammation of the nipple and around it, when the pains have become less intense and the swelling less sensitive to pressure. He also recommends it in

diffused inflammation of the cellular tissue, after Bellad., which moderates the inflammatory tension; as soon as chills set in with hammering pains, threatening suppuration. Moist poultices and Mercur. will soon bring the pus to the surface, where the abscess ought to be opened; or we may give Merc. from the very start, where the pains are not intense, the breast not hot and only of a slight redness. Circumscribed inflammation of the glandular and cellular tissues must be treated on the same principles. He saw no benefit in inflammation of the submammary cellular tissue from Merc. In *carcinoma mammae* Merc. might moderate the tearing, drawing pains.

Buhr says: As soon as the skin reddens, Mercury may sometimes still be able to produce a retrogression; but this is only exceptionally the case, but even where suppuration sets in, the continued use of Mercury for about two weeks will finish the whole process by cicatrization.

Guernsey. Mercur. in mastitis: hard swelling of the breast with sore and raw sort of feeling; the milk is not good and the babe refuses it; she has scorbutic gums and other general symptoms of Mercury.

In mammary cancer, when it feels sore and raw, *Jahr* and *Hartmann* give Merc. when neither Bellad. nor Bryon. were able to remove the erysipelatous inflammation, and hard and painful nodes remain in the breast. In induration of the mammæ with hard knots in them, or where there is a sensation of enlargement, he also gives this drug.

Griesselich recommends Merc. corr. for dwindling of the nipples, half a grain in several ounces distilled water, with which he touches the fissures, after the child has nursed, or at intervals. In one case the fissures disappeared in about a week, and also the accompanying erysipelas, although other remedies had entirely failed to give relief. Merc. and Iod. are both known to act energetically on the glandular system, and therefore Merc. iod. or bijod. might be preferable for the dispersion of indurations.

DISEASES OF THE MOTORY APPARATUS.

(1) DISEASES OF THE BONES.

We extract from *Keller's* observations in looking-glass manufactories: "Swelling of the bones, most frequently on the tibia, more rarely on the upper arm and head. These *tophi*, with swelling and sensitiveness of the periosteum, cause severe pains to the laborers at night and in bed, during moist weather, thunder-storms, and at the first fall of snow. Among thirty affected laborers in Idria, *Hermann* found two cases of caries (elbow and ankle), one case of spinal curvature in consequence of softening of all vertebræ (the patient, usually five feet high, hardly measured two and a half feet), a case of periostitis with consequent necrosis, and six cases of *dolores osteocopi nocturni*. He says: "At Idria we meet all syphilitic bone-diseases in persons who never had syphilis;" and Dr. *Gobey*, who practised for eighteen years among these laborers, coincides in this opinion, and cured many a case with Iodide of Potassium. The bone-diseases, which only twenty or thirty years ago were considered as effects of gonorrhœal cachexia, disappeared as soon as the gonorrhœa was treated without mercury. The same osseous affections are observed in persons who had never suffered from syphilis, nor taken mercury for any disease, but who were, by their trades, exposed to the action of mercury. In his work on the action of mercury he mentions: the characteristic night pains and the periostitis, endostitis, show themselves thus: at sunset the pains begin and increase in intensity up to midnight, then gradually decrease in severity towards morning, or rather with the rising of the sun. Only in rare cases the patient feels the pain also in daytime. The pain is boring, gnawing, less drawing, stitching or tearing. At night it prevents all sleep or disturbs it repeatedly. The nightly bone-pain is either without any visible, objective manifestation of the periosteum, or is connected with chronic periostitis; in the former case we may suspect an endostitis or an inflammation of the fibrous membrane of the marrow; in the latter we find a more or less firm, often elastic swelling, firmly adhering to

the bones, of various size, mostly longitudinal and sharply limited. As long as the exudation remains purely fibrinous, the swelling remains firm and hard; as soon as it softens, the swelling feels elastic and retains the impression of the finger. The skin over it is not discolored, not reddened, the swelling is at first very sensitive even to the slightest pressure. These nocturnal pains disappear in most cases after a few doses of Iodide of Potassium; and electrolytically we are sure by such treatment to find the quicksilver in the urine. This so characteristic nocturnal bone-pain is no specific diseased state, but rather the most prominent symptom of a periostitis, also an exquisite form of hydrargyrosis, sometimes the sole product of chronic hydrargyrosis, showing itself by such peculiarities.

(a) It attacks, in preference, the long, tubular bones, and here especially the tibia; among the broad bones, especially the frontal bone. Just as mercurial periostitis attacks hardly ever any other bone, any other periostitis, whether arising from a scrofulous or tuberculous process, hardly ever attacks these bones; while arthritis as well as rheumatismus are more articular affections. (b) Mercurial periostitis appears idiopathically, and necroses are consecutive to it; symptomatic periostitis is always a sequel of a specific disease of the bone-substance, or rather of the fibrous tissues spread through the substance; in the latter the inflammatory pain is continuous, whereas it is nocturnal in the former. (c) Mercurial idiopathic periostitis runs a specific course: the exudate either disappears entirely or it hardens in consequence of the formation of osteophytes, so that it forms an ivory mass (eburnation), closely adhering to the bones, or it softens, forming a more or less fluctuating, immovable, firmly adhering swelling, enclosed in a sac, with a final tendency to the formation of abscesses. In the former case it is a *tophus*, in the latter a *gumma*.

Symptomatic periostosis, on the contrary, has the prevailing tendency to suppurative dissolution of the exudation; to the formation of abscesses, in order that the little necrotic parts may find their way outside.

Mercurial crasis causes in the osseous system only one disease, an inflammation of the osseous substance—*ostitis*, which

in fact is only an inflammation of the sero-fibrous parts of the bony substance to the exclusion of the bone-earth, and where pathic products appear either as necrosis or as caries.

Mercurial ostitis has no other objective or subjective symptom except the nocturnal dolores osteocopi and the electrolytical proof of Hg, by which it could be differentiated from another ostitis and its products. Mercurial ostitis especially attacks the nasal and palatal bones, the forehead, the cranial bones, and in secondary frequency, in opposition to idiopathic periostitis, the long bones; and finally the joints.

We find in our poisonings with Hg, for *Merc. viv.*, caries of several ribs, caries of the superior thoracic vertebræ, in the son of a manufacturer of barometers, living with his family in the work-room; the father suffered from nocturnal boring pains in the bones; periostitis in the centre of the tibia (Case 25); exfoliation of the upper and lower maxilla (Case 20); loosening of large necrotic pieces of the mandibula (26); severe nocturnal pains in all extremities (46). *Merc. subl. corr.*: expulsion of a large piece of the necrotic upper maxilla. (21) *Calomel* (14) Necrosis of lower maxilla. *Merc. sol. Hahn.* gives us: headache, a pressing out pain in the forehead, and bone-pains over the eyebrows, even to the touch; pain above the occipital bones; in the small of the back, as if he was lying on some hard substance; solitary, lancinating stitches for about five minutes in the zygoma, chest, knee and olecranon, more in the forenoon and when walking; drawing and twitching behind the left ear, preventing sleep; the place is sore to the touch (os mastoideum?); swelling of the root of the nose; the nasal bone is painful to the touch; towards evening tearing in the mandibula; in the bones of the upper extremity a crushing pain; in the bones of the forearm and tibia a subjective pain, as if tired, not sore to the touch; (when walking) dull, stitching, cramping pain in the periosteum of the right inner forearm; pain in the left hand (in the bones), when stretching it out, taking hold of something, then a pressure, the hand feels as if paralyzed and stiff. Sharp stitches in the posterior part of the right pelvis; in the anterior lower part of the left os ilium sharp stitches at regular intervals, very sensitively felt; tearing

in the hip-joint (at night), in the knee, in the thigh-bone, in the right shoulder-joint, in the carpus and the bone of the upper arm; a hard swelling on the right tibia, looking white, shining and constantly painful; a boring pain in the tibia; a drawing pain in both tibiæ; a pressing pain in the periosteum of the right tibia, almost cramp-like (when standing): dull, stitching, cramp-like pain, almost tearing, in the periosteum of the left anterior surface of the tibia (when standing); tearing in the ankles to the dorsum of the foot, with swelling around; when sitting, tearing pain in the left heel, as if sprained; on several places of the body very fine, short pricks, as from pins, 3-4 minutes on the same spot in quick succession, as if it were in the bone. All the bones ache when sitting, lying, walking, or standing.

Kafka says in the therapeutics of the scrofulous, osseous affections: "We are not always able to prevent suppuration by *Hepar* or *Mercur.*, but if we only succeed at times to break up the inflammation, we find it advisable to use such means; in complication with latent or congenital syphilis, we meet severe, most'y nocturnal, pains; which yield best to the *Merc. corr.* or *bijod.*, or to *Iodide of Potash.*" Speaking of simple erosion of the cartilages and bones, he says: "where at the joints the bones are puffed up or at any other place, and very painful at night, we give for two or three weeks *Merc. sol.* (or *Mezer.* or *Phosphor.*), and then return to a former remedy (*Silic.*, *Calc. carb.*, *Sulphur.*). Where, in rachitis, the joints of the hands, feet, and vertebræ are swollen and sensitive to pressure, *Merc. sol.*³, two or three doses daily, will remove the hyperæmia of the epiphyses and of the periosteum."

Bæhr considers Mercury a remedy of the first order in osteitis and periostitis, and he considers it only contraindicated where the disease has arisen from abuse of the same drug. His especial indications are: severe bone-pains, swelling, redness of the skin; especially in more acute cases; but chronicity is no contraindication. Mercury acts more rapidly and with more certainty in children. Affections of the head are more suitable than any other locality. He advises care regarding the dose,

the slow course of the disease admonishing us to use small doses rarely repeated.

Helmuth says: "We should think well of mercury in perioritis and nodi, but it should never be given where the patient has already taken the drug in large doses. Many cases of secondary syphilis with its affections of the bones and periosteum come under treatment, where these pains are sequelæ of former large doses of Mercury, prescribed during the primary stage. He recommends it for nocturnal bone-pains, in perioritis characterized by stitching, boring and gnawing pains, becoming unbearable at night; redness and swelling of the soft parts covering the bones; stitching, crampy pains in the muscles or periosteum; boring pains along the tibia and pains in the bones. In ostitis Merc. sol. acts powerfully when the symptoms are: pain severe, as if the bone were broken; profuse sweats; drawing pains, flying from one place to another. It is especially indicated where the periosteum is also affected; in soft swelling of the bones; in great sensitiveness to air and nocturnal aggravations. Where suppuration takes place, Mercur. is still indicated; but the pus ought to be evacuated. In osteomyelitis the corros. acts best, and it is especially indicated in bone-pains with swelling and tension of the parts; where the disease runs a rapid course and mercury has not already been taken in large doses. In caries mercury is important for the ostitis and periostitis, the inflammatory process is thus stopped, before other mischievous symptoms appear. In the first stage of necrosis with severe, extensive inflammation of the soft parts. In exostosis of the tarsal bones. In osteocystoma, Merc. sol., according to *Hartmann*, should be given when the bones are swollen, but not greatly inflamed; but still he fears that in some cases Mercur. might increase the inflammation, and whenever given in such a case, it ought to be a similitum. In carcinoma osseum it might act well during the first stage.

Goullon recommends Merc. (sol.) for the alleviation of the intense nocturnal pains. Mercur. and Phosphor. cause necrosis, and both have done good service to us in the treatment of that disease. *Merc. præc. rubr.* cures *ozæna* far better than Aurum,

when caused by ulceration in the nose. Its curative influence in caries and necrosis explains its beneficial action in many a case of hard-hearing and in dental practice. As a remedy in bone-diseases, *Mercur.* approximates *Silic.*; and it is our sheet-anchor in scrofulous suppurative processes. We might especially mention: nocturnal bone-pains, and distortion and friability of the bones.

Yeldham. Periostitis, following quickly the primary syphilitic ulcer. *Merc. sol.* or *bijod.*

Schelling leads our attention to Mercury in inflammation of porous bones, especially in acute inflammation of the spinal column.

Hofrichter cured exostosis, *e. g.*, on the tibia, sternum and ribs, with *Merc. corr.*, a severe diet, and strict confinement to the room.

DISEASES OF THE JOINTS.

Dieterich thus describes the mercurial inflammation of the joints: A slight stitching, pressing pain in the joint sets in; the joint swells up and becomes of a pink or dark red color. This redness disappears on pressure, but returns immediately. The swelling is neither hard nor doughy, and feels hot to the touch. When at rest and at a low temperature the pain is moderate; but becomes severe during motion and in the heat of the bed (especially from *Merc. corr.*). It may end in caries or ankylosis. *Wilhelm*, *Handschuh*, *Warbeck* *ae* *Chatou* and *Stokes*, also speak of a mercurial rheumatism, attacking the knee and shoulder-joint, more rarely the hip-joint, elbow and carpus; sometimes in the form of an acute rheumatism, leading to hydrarthrosis on to suppuration in the joint. *Richter* ascribes especially to the corrosive the quality of causing rheumatitis; and *Kussmaul* acknowledges that painfulness of the joints is frequently observed in mercurial trades; but denies that inflammation or exudation in the joints follows such labor. *Leadrick*, on the contrary, observed in consequence of the abuse of mercury, swelling of the joint with considerable exudation in its cavity.

Russdorf thus describes mercurial rheumatismus: In the first stage pains in the joints of the extremities when using them, aggravated by pressure. Their seat is in the perichondrium where the muscles are inserted, and the pains migrate in all directions; in the second stage hydropic exudation takes place, especially in the knee-joint; the swelling is painless; by and by the muscles are attacked and become painful to pressure. Concomitant symptoms are: palpitation of the heart; frequent pulse; horripilations; great malaise; sleeplessness; crepitus articulorum. There is also a rheumatismus vagus, emanating from the sensory nerves. When at rest we find subsultus tendinum frequently over a whole extremity.

Merc. sol.: The left axilla is considerably higher than the right one, although it did not enlarge laterally; with pains waking him from sleep, especially during motion; terrific stitches in the shoulder-joint in the evening; a cracking sound in the axilla and elbow-joint; a kind of twitching in the axilla every quarter of an hour; tearing in the right shoulder-joint, the upper arm and corpus, in the knee and hip-joint and in the thigh-bone; in the axilla pain as if something was pressing downwards; tearing in the elbow-joint; slow, tearing stitch in elbow; red, very hot swelling of the left elbow, extending down to the hand, with burning, tearing pains and crawling sensation as from ants; burning in the elbow-joints; stitches in the elbow; in the joints of the hand a painless hammering; painful stiffness of the joints of the right hand; loss of power and paretic sensation in the joints of the left hand, with stitches and cracking therein; the left wrist is swollen and painful when moving it and seizing anything hard; painful stiffness of the hand; considerable swelling of the left hand; tension in the whole hand; drawing pains in the hands with coldness of the fingers; in the morning the fingers go asleep, with buzzing in the fingers, afterwards tearing, extending to the middle of the forearm; painful swelling of the posterior knuckles; tearing here and there in the finger-joints; aching pain in the middle joint of the middle finger when bending it; a pressing pain in the middle joint; stitches in the right hip-joint when walking; the leg is quite stiff

when walking; the knee-joints are painful when lying down, as if broken; slow tearing stitch in the right knee when sitting or walking; tearing in the knee-joint; simple pain in the right knee and as if it were stiff; in the knee-joints paroxysms of painless hammering; when walking out stitches in the knee-joints; sensation of stiffness in the left leg, extending to the bend of the knee; violent pressure under the ankles and in the tarsal joints superiorly, rendering walking difficult; violent swelling of the right tarsal joints with stitching pains in the joint, especially when walking and in the evening; pain as if sprained in the right tarsal joint; painful slow drawing in the right tarsal joint, below the outer ankle, extending to the hollow of the sole of the foot and commencing with stitching and griping (cracking in all joints); in the joints paroxysms of painful hammering; arthritic pains in the joints with swelling of them; nearly uninterrupted pain in the joints, as if sprained, compressed and mashed, so that he cannot rest on any place; he has to move his limbs continually to all sides.

The following symptoms point to contraction of limbs: Contraction of the fingers of both hands, especially the thumb, which is clenched, as in epilepsy; without aid he is only able with great exertion to stretch the fingers two-thirds, the hands trembling all the while; painful cramps in the fingers and hands, first the fingers become stretched, making the bending difficult; after bending them the cramp contracts the fingers; sensation as if the bend of the knee were too short; spasmodic drawing up of the legs; they remained contracted the whole night, although he wished to stretch them. Hence we see that *Mercur.* suits acute rheumatism as well as rheumatic, dyscratic, etc., inflammation of single joints with serous exudation and even suppuration.

(a) *Inflammation of solitary joints.*—*Kafka* gives in *scrofulous inflammation of joints* *Merc. sol.* (*Bryon.*, *Arnica*, *Sulphur*), when the inflammatory symptoms have passed, but the joints are still swollen, their functions disturbed and exudation remains; also in the second stage of *coxitis*, when the affected limb is elongated, every movement, by which the surfaces of the respective joints come in contact one with another, very

painful; the patient limps: exudation has already taken place, with a simultaneous inflammation of the cartilages of the periosteum and of the bone itself. He gives *Mercur.* or *Iodum* internally, and externally *Ungu. cin. Zi*, *Axung Zi*, to prevent rapid absorption of the exudation in order to prevent its evil influence on cartilage and bone. During the third stage, when the extremity appears shortened and the exudation causes spontaneous luxation, *Mercur.* or *Iodum* are still the remedies indicated.

Buhr remarks in *acute coxitis*: Where the symptoms of suppuration are clearly present, Mercury remains our mainstay. In the second stage of chronic coxitis purulent destruction takes place, if not prevented by Mercury, especially in scrofulous individuals. In *tumor albus genu*, when the affection begins in the bone, with great painfulness and but little swelling, Mercury is in place and still more so, where suppuration threatens. *Mercur.* and Sulphur correspond more to that form where the swelling is very hard and of little circumference. In *inflammation of the ankle*, emanating from the bone, *Bellad.* and *Mercur.* are indicated.

Hughes recommends *Mercur.* in chronic rheumatic synovitis; *Merc. corr.* in painful ulceration of the cartilages of the joints.

Helmoth prescribes *Mercur.* in synovitis, complicated with syphilis, with drawing pains and stiffness of the parts affected, especially where we meet profuse sweats and nocturnal exacerbations; also in scrofulous inflammation of the joints and ulceration of its cartilages, with purulent or serous infiltration. In the first stage of coxitis, when the patient complains of pains in the knee, we may begin with *Bellad.* in alternation with Mercury.

Hirschel found *Merc. sol.* very useful in the first and second stage of coxalgia; as we nearly always find then nocturnal exacerbations.

Cl. Müller remarks: In recent cases, where the head is not yet pushed out of the acetabulum, *Bellad.* and *Mercur.* act beneficially.

(b) *Acute Arthro-rheumatismus*.—We find in *Kafka*: Where fever and articular pains are moderate during the day, but be-

come aggravated at night, especially in bed; where simultaneously the joints are very red, the epiphyses greatly enlarged, and where in the synovial capsules, *e. g.*, of the knee, ankles and elbow, a soft exudate is present, very painful to pressure, with profuse, sour smelling, not alleviating perspiration, great thirst and scanty urination, the urine being highly saturated, where the patients are not allowed a moment's rest in spite of the increasing pains on every motion, we apply Merc. sol.³ in trituration, a dose every two hours, till decided amelioration sets in, which usually happens in 24 to 36 hours.

Bahr remarks: Many a syphilitic patient, treated with Mercury, suffers terribly from rheumatism, a fact showing us clearly its great remedial power in rheumatic affections. It suits more *acute and subacute rheuma* than chronic cases, according to the symptoms: high fever, very quick and hard pulse, copious and foul smelling perspiration, excessive thirst. The local swelling is of less degree, but rather painful, very red, with threatening suppuration; it does not easily change its location, and where other joints become affected the former swelling still remains very painful; the breath is foul; the tongue heavily coated; all appetite gone; food causes nausea; copious sudamina on the skin; the pains increase every evening towards midnight from the slightest effect of cold air; whereas strong external heat diminishes them. It is especially suitable where frequent relapses take place. Indications in *muscular rheuma* are: The nocturnal exacerbation and deep-seated pain as if the periosteum were attacked, with great sensitiveness to slight or severe pressure. Mercur. takes a front rank for the complicating inflammations of internal organs, as in carditis, pneumonia, pleuritis, meningitis.

(c) *Chronic Articular Rheumatismus*.—*Kafka* uses Merc. sol.³ for the absorption of the exudation in the synovial capsule and in the cartilages of the joints; when the affected joints crack during motion, with the usual mercurial aggravations.

Hughes recommends Merc. cor. and sol. in low potencies, in chronic articular rheuma with profuse, non-alleviating sweats and nocturnal aggravations.

Helmoth prescribes Mercur. for continual changes between

cold and heat, or for internal heat with continual horripilations on the affected parts, which are continually moved about on account of the internal malaise, or on account of the drowsy, tearing pains.

DISEASES OF THE MUSCLES.

All authorities agree that not only abuse of mercury, but also relatively small doses may produce rheumatic muscular pains.

We find in *Merc. vic.*: severe pains through the whole body, exacerbating at night (12, 13); tearing pains in the abdominal muscles (47); severe pains in the abdominal muscles (47); stitching, pinching pains in different parts of the body (24); tearing in the extremities (33); tearing in the extremities, especially in the arms (35).

Merc. sol.: Tearing in the right cheek; tearing in the left cheek, extending to the ear; bruised sensation to the touch in the left chest; violent tearing pains in the muscles of the chest towards the left axilla; tearing pain at the coccyx, diminished by pressing it to the abdomen; griping pain in the small of the back, especially when standing, somewhat diminished when walking; bruised sensation in the small of the back; pain in the small of the back diminished when sitting; a stitching pain in the small of the back and thighs, so that he has hardly any power there and in the knees and feet; fine stitches close to the false *processus spinosi* of the os sacrum; sharp stitches, as of needles, in the spine between the shoulder-blades; fine and coarse stitches in the dorsal muscles when walking; tearing pains in the back when sitting; the back pains as from bruises; when walking in the fresh air a bruised sensation in the left side of the back, as from frequent stooping, for several days; burning pains in the right shoulder up to the neck when sitting; burning between the shoulders down the back; between the shoulders, where the neck begins, when turning the head or the whole body (when lying) severe pains, aggravated by lifting, so that he compresses his teeth; tearing in the shoulder-blades; a crampy pain under the shoulder-blades during motion, at midnight in bed; a bruised pain with stitches

and tension in the left shoulder-blade, so severe when turning the head that he weeps and screams (soon after waking up in the morning); burning pain when sitting in the right shoulder up to the neck; stiffness of the neck with stitches when moving it. Rheumatismus in the neck like a pressure even at rest, mostly when bending the head backwards; neck stiff and swollen, so that he can only turn it with difficulty; painful stiffness of neck and sensation of heaviness, he can hardly turn it; twitching, tearing in both upper arms; soreness of the muscular fibres to the touch; burning in both arms, so that everything drops from his hands and the arms hang down; the right arm and hand as if asleep, relieved by motion; tearing in right arm (inside); a dull, stitching pain in the right lower forearm in all positions; a dull, stitching, crampy pain in all positions in the muscles of the left lower forearm; boring pain in the right glutæi; burning in the glutæi; pain in the right thigh as if bruised, aggravated by touch and by walking; a stitching, tearing in the muscles of the right thigh in all positions; a tensive pain in the right thigh when sitting; drawing pain in the anterior surface of the left thigh; bruised sensation in the right thigh; drawing and heaviness in the legs; when walking in the fresh air stitching, tearing in the muscles of the right thigh; paroxysmal tearing from the great toe to the knee; tearing in different parts of the body; tearing here and there in the extremities, more in the muscles, aggravated by the touch; twitching and tearing in the extremities here and there; tearing pains in the hands, back and chest, with headache; nocturnal drawing pains in extremities; the whole body feels bruised, especially the thighs, for many days; lassitude with tearing, drawing pains in both thighs, after midnight in bed, when getting up; when stepping about pain in the inguinal region down to the knee as if the anterior muscles of the thigh were torn away; he does not feel tired when sitting, but greatly when moving about ever so little, especially about the legs, as if he had walked great distances.

Merc. subl. corr.: Pains in all extremities (41). From Buchner's symptoms: fine stitching pains here and there in the muscles during the day; a tensive pain exteriorly next to the

left scapula; repeated tearing in the left shoulder; tearing in the arms to the bone, especially at night when she awakens; peculiar relaxed sensation in the deltoids; itching, contracting pain in the muscles of the right metacarpus; stitching pains in the dorsum of the hand, especially in the adductor and extensor pollicis and in the extensors of the foot; could not sleep at night on account of the burning and stitching from the left inguinal ring to the thigh; stretching the foot out ameliorates; sensation as if clasps were loosened from the lower region of the muscoli recti; rheumatic pains as from the insertion of needles in the feet; stitches in the muscles of the lower extremities; peculiar sensation of relaxation in the calves and muscles of thighs; tearing on the inside of the left calf.

DISEASES OF THE SKIN.

Hermann ascribes to mercurial skin diseases the following characters: (1) The affection of the skin is commonly of a higher grade, the pustule, the vesicle, the nodule. (2) Its color is mostly coppery on any part of the body, and, according to duration, lighter or darker; (3) the seat from the beginning to its full development is not limited to any part particularly; (4) they have a decided tendency to ulceration, and thus form the bases of the so-called secondary syphilitic ulcer of the skin, which ought rather be called a serpiginous one (5). Treated with Kali hydrojod., which is here specific, Mercury is shown by electrolysis in the urine and other secreta.

(a) *Pruritus—Itching.*

Merc. viv.: Erythema with violent itching and burning (4, 5, 6); heat and itching on the whole body, especially on the face and eyelids, with swelling of the integuments (10); itching on the thighs (11); skin swollen and inflamed, partly itching, partly without sensation (11).

Merc. sol.: Itching on the forehead; burning-itching on the forehead and scalp; itching-tearing in the neck and hairy scalp; itching and burning on the hairy scalp day and night; eruption on the head, itching so violently that he has to scratch; violent itching on the right side of the nose, he has to

rub it; stitching-itching of the abdomen in the evening, burning after scratching, no eruption on the head; itching when walking, at the os sacrum; itching on the back, in the evening in bed; titillating-itching on the left side of the back, so that he has to scratch; burning-itching and heat over the whole back, mostly when taking the fresh air; itching at the right shoulder-blade; itching at the left elbow; corroding itching on the back of the head in the evening in bed, passing off after scratching, but soon returning; titillating, stitching, itching on the inside of the lower joint of the thumb of the right hand, so that he has to scratch; in the evening itching of the lower extremities; itching relieved by scratching on the inside of the thighs, causing small elevations; itching on the thighs; stitching-itching in the skin of the thighs, waking him after midnight; itching of the legs; itching between the toes, especially in the afternoon and evening; itching in the joint, as from scabies, worse in the evening and night, but without any visible eruption; unbearable stitching-itching, as if from flea-bites, in the evening; violent itching all over the body, so that she has to scratch much at night, with great redness and heat of the face.

Kafka gives Mercur. in pruritus: burning, stitching-itching from warm air, heated rooms, especially from the warmth of the bed; when perspiration breaks out; or when going to bed, undressing—continuing the whole night and disturbing sleep. Itching of the glans, external labia, and between the toes.

Hughes recommends for pruritus Mercur. internally and externally.

Jahr recommends Mercur. for an acidity, showing itself at the anus, genital organs, etc., and itching violently.

Merc. subl. corr.: Itching over the whole skin, which feels dry (56). *Buchner*: Itching on different parts of the skin (scalp, thighs, etc.), changing frequently to fine stitches, and burning; itching, burning, stitching, immediately under the skin; itching passing into fine stitches in the centre of the back, as if it were in the skin; she awakes at 1 A.M., with such a violent itching of the scalp, that she not only scratches herself with the nails, but also with her comb.

Cinnabaris: Itching of both eyelids; itching over the body and on the corners of the eyes; for two days unbearable itching at the corners of the eyes; violent itching in the right ear; itching on the left side of the face; itching in the palm of the right hand; itching on the right wrist; violent itching on the inner surface of the thighs and knees, especially of the latter and at night; severe itching and stitching on the inner surface of the knee; worse at night and before getting up in the morning; sensation of soreness at the ankle, accompanied by heat and itching over the whole thigh; violent itching of the anus, worse at night in bed; itching on different parts of the body in the fresh air; from time to time itching over the body.

(b) *Burning, Titillating, Stitching.*

Merc. viv.: Erythema with violent itching and burning (4, 5, 6.)

Merc. sol.: Burning on the left temple; burning on the left side of the forehead, passing off after touching it; burning and itching on the scalp; burning in the hand, the cheek and chin; burning hot sensation over the whole back (burning in the soles of the feet in the evening); herpes, causing burning when touched; violent titillation in the palm of the left hand, so that he has to scratch; a fine titillation in the right palm, necessitating scratching; stitching and itching on the skin of the thigh, rousing him out of his sleep at 3 A.M.

Merc. corr.: Skin very hot and stitching; burning and redness of the skin: itching on different parts of the body, increasing to fine stitching and burning.

1. HYPERÆMIA OF THE SKIN, ERYTHEMA.

Merc. viv.: Erythema with severe itching and burning (4, 5, 6); general erythema with desquamation (11).

Merc. sol.: Itching eruption of the head, necessitating scratching (?) dry eruption of the whole head, feeling sore to the touch (?)

Calomel: Erythema of the whole body (7); severe burning of the reddened skin (8); erythema (9).

Cinnabaris: Redness of the skin, as of a chronic eruption.

Kafka considers *Mercur.* of first importance in erythema from acrid secretions. *Bähr* praises *Merc. viv.* or *sol.* highly for the chafing of infants. *Hughes* also recommends them in intertrigo, when the affected parts become raw and painful. *Guernsey*, where the excoriation is worse at night, very raw and bloody, preventing the sleep of the child.

2. ANOMALIES OF SECRETION.

Sebaceous Glands.

Hypersecretion of the sebaceous glands is not mentioned among the symptoms of *Mercur.*, still we know that all glandular secretion is increased, especially of the perspiratory glands. We find in *Merc. sol.*: At night a kind of fatty or oily perspiration, making the linen stiff and yellow, so that it can hardly be removed by washing; small, elevated, firmly adhering crusts on the hair of the head; crusts on the scalp, itching and, after scratching, burning.

Kafka saw great benefit from *Merc. sol.*³, where the sebum is secreted in large quantities on the head, so that the hair becomes matted, with severe itching and heat of the scalp; in seborrhœa of the fossa coronaria with hyperæmia of the glans or prepuce. He also gives *Merc. corr.*³ internally, and applies a weak solution externally (one grain to three ounces water). It is also useful in seborrhœa of the female sexual organs.

b. Perspiratory Glands.

Dieterich describes the mercurial hyperidroses, saying: The skin is at first very hot, followed by copious perspiration all over the body, especially over the chest, continuing uninterruptedly for 24 to 30 hours, then gradually decreasing, so that toward the close of the second day the skin feels only moist. Thirst excessive; the perspiration of a foul odor, between flat and putrescent. The patient then feels exhausted and tired. There remains a great tendency to perspire; even when only eating a warm soup the skin gets in abnormal action. Persons with chronic mercurialism suffer often from frequent perspiration. Laborers in Hg. with habitual mercurialism, suffer from

nocturnal perspiration, which often continues for a long time afterwards.

Merc. sol.: Cold sweat of anguish in the face, with great malaise for one-fourth of an hour, followed by diarrhœa; towards morning cold, sweaty feet; he has to lie down in the forenoon on account of itching and heaviness of the thighs, with copious sweating of the face and of the whole body; frontal perspiration in the fresh air; *copious perspiration when walking; perspires from the least motion*; perspiration when drinking something warm; sleeplessness and vigilance at night up to 3 A.M., followed by sweat before falling asleep; he does not sleep before midnight, and awakens early in the morning, when it is still dark, with some sweat; he wakes up during the night and perspires only on the legs, from the knee down to the soles, not on the thighs or soles; by putting the feet out of the bed, the perspiration disappears immediately. Sweat causing a burning sensation in the night; day and night greatly inclined to sweat, still more at night; copious perspiration all through the night, from the evening to the morning; foul-smelling perspiration for many nights; copious night-sweat; violent sticking sweat, so that the covering and mattress are soaked through; sweat on the face and chest; frequent cold sweats on face, the other body being dry; excessively copious, sour and disgustingly smelling sweat, softening, as it were, the fingers, and rendering them spongy and wrinkled, as in washerwomen; sour smelling sweat and when she puts a foot out of the bed, severe tearing in it; sweat every evening for half an hour after lying down; *copious perspiration in the morning*, with thirst, nausea and vomituration and excessive palpitation of the heart; perspiration in daytime with nausea; copious perspiration at night in bed, he falls asleep sweating; *copious night-sweats*; sweat in the palms of the hands and soles of the feet; sweat at night on some parts of the body and dryness of other parts, the sweating places are not over six inches in circumference, but there it is trickling down; head and face dry. Immediately after eating, anguish with sweat on the face and forehead, which appears to him of icy-coldness; she has to go out, before the sweat disappears with dyspnœa and stitches in the right side close to the ribs.

Merc. subl. corr.: Skin cold, covered with sweat (27, 29, 33); copious night-sweats (61); sweat and sensation of coldness (3); cold sweat (34); night-sweat (20). Buchner: Skin covered with cold sweat of anguish; sweat under the left axilla, then general, when he awakes at night from sleep; sweat at night (Van Swieten); sticking sweat towards morning; moderate sweat during the night when he is awake.

Merc. præc. rubr.: Skin cold, covered with sweat (1); night-sweat (1); cold, clammy skin, especially of the extremities (4).

Cinnabaris: Chilliness in the morning, with sweat under the arms; profuse sweat between the legs, worse towards noon.

Characteristic of sudor mercurialis are therefore: Sweat foul-smelling, sometimes cold; cold sweat with anguish (*Merc. corr.*, but also other preparations); partial sweat, most frequently on the face and chest, especially at night and in the morning, during motion or when drinking something warm. It is indicated for profuse, foul-smelling sweat, based on tuberculosis, scrofulosis, etc., or where other symptoms suggest mercury, and the patient is not relieved by the sweat.

Jahr: Frequent night-sweats, the perspiration setting in as soon as his head touches the pillow; he perspires easily in daytime from the least exertion or motion; partial sweat on the head, face, genitals; weakening, not relieving, oily, fatty, clammy, sour or foul-smelling perspiration, staining the linen.

3. INFLAMMATION OF THE SKIN.

a. *Erythematous Inflammation.*

a. *Urticaria.*

Frank and *Kussmaul* observed urticaria in laborers with Hg.

Merc. sol.: Urticaria, changing after two days to red spots; eruption of red, raised spots, itching and stitching.

Cinnabaris.: At night severe itching on both shoulders, red streaks appearing after scratching; small red elevations, itching unbearably till he goes to bed.

β. *Erysipelas*.

Merc. viv.: Stens observed a febrile erysipelas in a patient, who rubbed mercurial ointment around his hemorrhoidal tumors. *Kussmaul* observed erysipelas in workers on looking-glasses (10). We also read in our cases: heat and itching over the whole body, especially on the face and eyelids, with swelling and inflammation of the integuments (probably Stens's case). *Erysipelas antebrachii* (34).

Merc. subl. corr.: Vesicular erysipelas (14, after external application), the arm up to the shoulder was excessively swollen, red and covered with vesicles (6, after ext. use).

Merc. dulc.: The whole skin very red and somewhat swollen, worse on head and neck, which appear livid (7).

Merc. sol.: The right side of the face swollen, especially under the eye, and hot; great swelling of the left cheek; the whole nose, especially on the left side, is swollen, very red and shining, with itching of the nostrils; inflammatory swelling of the nose; top of the nose swollen, red, inflamed, itching. (Comp. eczema.)

Kafka gives *Merc. sol.*³ (or *Jod.*³), a dose every two hours, in erysipelas verum combined with cellulitis.

Bähr: Where suppuration threatens, we can hardly ever prevent it with *Mercur.*, and it is better to have immediately recourse to *Hepar*. He recommends *Mercur.* where there is great pain and the erysipelas not seated on the face.

Guernsey gives it in erysipelas syphil. of infants.

Jahr mentions *Mercur.* in phlegmonous, scarlet colored, secondary erysipelas, but does not mention it in that of the face.

Hartmann: Erysipelas neonatorum is based in most cases on a syphilitic or herpetic dyscrasia. During the first few days of infantile life there appear red spots, especially between the thighs, on the scrotum and inguinal region, at first pale red, but soon of a more intense color, forming a kind of intertrigo, with a disagreeably smelling exudation and easily suppurating; spots of a deeper redness soon appeared on other parts of the body, especially on the abdomen, near the umbilicus, etc., taking on more and more an erysipelatous character, and extend-

ing to places already affected; diarrhœic fermented stools and high fever are now added to it. Mercur. corresponds to such a state, and no other remedy can be compared to it. It ought to be given in alternation with Sulphur³¹, where the mixed herpetic dyscrasia is clearly proven.

Quin recommends Mercur. for erysipelas bullosum.

Hirschel recommends it in suppurating erysipelas, and in erysipelas neonatorum with suppuration.

Goullon, jun., cured with three doses of Calomel an erysipelas faciei with typhoid symptoms after the failure of Bellad., Bryon. and Rhus.

Comparing the manifestations of Calomel, found under eczema, we easily understand its indications in grave forms of erysipelas (typhus, meningitis, etc.).

b. Phlegmonous Inflammations—Furuncle, Phlegmon, Panaritium.

Kussmaul observed phlegmon and furuncles on different parts of the body, also several times panaritia in workers on mirrors, suffering from habitual mercurialismus. Other authorities have seen the same from the internal as well as external use of Hg.

Merc. sol.: Pimples and small boils on shoulder-blades and abdomen; small sores on the finger-joints, which are somewhat ulcerated; a boil on the left upper thigh painful to the touch and when walking; many ulcerating sores from small pimples on the left leg, remaining open for 8–10 days, and healing by exfoliation of the skin.

For *phlegmon*: Digging up pain along the ball of the right little finger on the outside, worse during rest; (when standing) a digging pain in the right sole; great swelling of the heel, so that she can hardly stand with burning and gnawing pains in the whole foot; he could not keep his foot in bed; for *panaritium*: burning twitching under the nail of the thumb, when writing; boring pain at the first joint of the third toe at rest and during motion; burning pain under the left big toe (when resting).

Kafka uses Merc. sol.³ in phlegmonous inflammation of the

skin, when, in spite of cold applications, the pains, the heat and the tension increase in the inflamed parts, with no fever and total sleeplessness.

Bahr: Where the furuncle is very extensive, and the cellular tissue highly inflamed with high fever, and the boil will not come to a head, a few doses *Merc. viv.*, to be followed by *Hepar*, will hasten the cure.

Kreussler expects much from *Mercur.* in panaritria, where the inflammation is seated in the cellular tissue, between skin and sinews; in the sheath of the sinews; in the sinews, and in the joints connecting the phalanges.

But cutaneous inflammations are only caused by Mercury after a protracted action of the drug on the organism; it does not influence the idiopathic process; hence we cannot expect much from it in such affections. In Andrien's experiments the *Merc. bijod.* caused small boils on different parts of the body, and thus perhaps this preparation might be here preferable.

c. Vesicular Inflammations.

Pearson, Bartels observed them after mercurial action.

d. Herpes.

Merc. sol.: On the inside of the wrist-joint blisters full of a watery fluid; transparent blisters, containing a small quantity of watery fluid, on different parts of the body, early in the morning; pimples below the vermilion border of the lower lip, with stinging pain when touching them, more towards the corner of the mouth.

Cinnabaris: Red, herpetic (?) spots on the forehead, especially over the right arcus supraciliaris; two small red spots on each side of the glans, secreting a large quantity of a lardaceous mass (*Herpes præputialis*).

Kajka does not consider Mercury a remedy for herpes; still he finds it indicated by the burning pains, preceding the breaking out and course of herpetic forms, and in zoster refers to the accompanying neuralgiæ.

Bahr remarks on zoster that Mercury may counteract the formation of new vesicular groups.

Jahr mentions Mercur. only as a remedy of secondary rank ; it may even aggravate a herpes præputialis. The different forms of herpes, as phlyctenoides, circinnatus, zoster, find mostly their chief remedy in Mercur. and Sulphur. In zoster he relies on Mercur.

Trinks gave to a patient, suffering from zona, Mercur.³ and received the report that the disease yielded more rapidly than at any other time. *Wolf* also cured several cases of zona in nine days with Mercur. *Lobethal* considers Mercur. the only remedy which rapidly removes the burning pains of zona and considers it specific.

γ. Eczema.

Eczema Mercuriale Symptomaticum.—A few days after the inunction with mercurial ointment the patient feels a troublesome itching at the places of friction. The skin takes on a pink color, interspersed with white spots, as the redness is composed of many irregular plaques. The redness disappears at pressure, but returns with the cessation of it. The skin feels burning hot. After ten to twelve hours the examining finger detects small insignificant elevations on the reddened surface, and under the microscope we see quite small but closely standing vesicles. On the second day the vesicles become more raised, so that they can be seen with the eye filled with a yellowish lymph. With the appearance of the vesicles the itching ceases. On the third day they sink in, dry up, and by the fifth day bran-like desquamation takes place. Where the Hg. acts more powerfully the symptoms are also more pronounced, the skin darker, the vesicles larger, nearly pustular, and the patient has fever. Whereas at the place of inunction the vesicles always appear first, we soon find similar red spots in the groins, inner surface of the thighs, scrotum, even on the chest. The skin desquamates in pieces. Some consider such a state caused by a peculiar idiosyncrasy, and it may last three to four weeks.

Eczema Mercuriale Criticum (Plumbe, Dieterich, Falke), first stage.—After a febrile prodrome the patient feels an itching, crawling in the skin, extending over the greater part of the

body, but especially severe in the bend of the joints, at the inner surface of the thighs, in the inguinal region, pubic region and under the axilla. The second stage begins with rawness of the skin of the affected parts, followed by an exanthema simulating measles. On the second day the rawness is increased, the small spots become confluent and form red patches of different size and form, with vesicles of the size of a pin-head, standing closely together and surrounded by a red halo. On the third day the parts of the body, which are usually more exposed, are also covered with vesicles containing a transparent fluid; whereas those on the thighs and groins become dull and milky. On the fourth day many burst, and the affected surface is covered with an exudation of a viscous fluid, smelling disagreeably, penetrating and stiffening the linen. On the fifth day desquamation in large pieces follows. The inner surface of the thighs as well as the inguinal region, the scrotum and the edges of the axilla are sore and covered with the same fluid. Every attempt to change position is excessively painful to the patient. The pulse is weak and quick, the tongue slightly coated, debility, but appetite is not diminished. It runs a tedious course, as the eruption is apt to reappear on places where a new cuticle had shown itself. Such an eczema is idiosyncratic and takes the place of salivation.

What Dieterich and Falke calls impetigo, may be considered as *eczema impetiginosum*: The skin begins to swell and expand, so that the features can hardly be recognized, and the eyelids closed. The swelling goes over the whole body, the temperature increases and the pains are severe. First in the pubic region, then on the chest, appear dark pinkish spots of different sizes, of irregular borders, confluent, on a smooth surface and violently itching. Large vesicles arise upon them, which subside at about the fifth day with a bran-like desquamation; about the ninth day the itching continuing during its whole course, whereas they appear at first only at the sternal region, they spread gradually over the whole chest, appear also on the arms, calves and inside of thighs. Sometimes we find bullæ instead of the vesicles, which burst and discharge considerable fluid. After eight to ten days, exfoliation of the inflamed skin in

large pieces takes place. It may happen that the cuticle comes off in one piece, as *e. g.*, on the hand like a glove. After the casting off of the cuticle, peculiar, fishy-smelling, lymphatic and purulent exudations take place on the inflamed skin, which dry up to crusts, covering deeply ulcerated surfaces where the exudation continues. The upper part of these crusts become gradually withered and whitish-grey and fall off in scales. This process of dying off externally and of regeneration of the crust from below may repeat itself continually. Finally, also the skin on the hairy parts of the head, beard and eyebrows become dry, rough, fissured, and white, bran-like scales fall off in large quantities, alopecia follows (with the exception of the cilia), and also the nails on hands and feet fall off. In some cases misformed nails may grow and the skin also remains rough and scaly. It differs from syphilitic eruptions by the coppery color of the latter and their painless progress, also by the appearance of new syphilitic symptoms after the exanthema has run its course.

In our cases of poisoning all forms and stages of eczema are found.

Merc. viv.: (4) eczema vesiculosum and squamosum; (5 and 6) eczema impetiginosum; (10) eczema squamosum; (11) eczema acutum in all stages; (25 and 27) eczema from the vapors of Hg.

Merc. subl. corr.: (1) Eczema vesiculosum squamosum, an exquisite case; internally given we never meet cutaneous affections, as in large doses the manifestations of the mucous membranes appear more in the foreground. *Hahnemann's* proving gives us the symptoms: painless blisters on the arms and abdomen in the morning, which pass off during the day.

Calomel.—Eczema vesiculosum squamosum (8). Duncan and Alley observed eczema from two grs. Calomel.

Merc. sol.—In Andrien's experiments we find eczema and the *Materia Medica* gives us: small, raised, firmly adhering crusts between the hair of the head, itching and burning after scratching. Moist eruption on the hairy scalp, eating away the hair with painful pressure, especially at the sore places; eruption near the corners of the upper lip with yellow crusts, with a

smarting, burning pain; under the chin yellow crusts quarter of an inch thick; nearly painless eruption on both thighs in the evening, preceded by heat in the head, and itching in the dorsum of the feet; a burning water oozing out after scratching, as when one pours brandy into a wound; after itching, about midnight, sweat on abdomen and thighs, all without thirst. Eruption on the legs, sexual organs, bend of knees, neck and abdomen, red, sore, humid, itching, considerably elevated and on several places looking like fatty scabies; a place swelled up and a grey flat crust formed upon it, after which swelling and pain ceases.

Cinnabaris causes eczema according to the experiments of Andrien.

An extensive eczema was observed after the internal use of *Merc. oxyd. nigr.* and application of unguent. cinereum. Although the inunction produces most frequently the eczema, still we cannot put the whole blame on the local irritation, as the eruption is also observed on places far from the eruption, during internal use, in laborers and provers of Hg

Kafka.—*Merc. sol.*³ in acute eczema with humid vesicles, with heat and burning of the affected parts; oedematous swelling, *e. g.*, of the eyelids, of the penis, ear, scrotum, etc.; simultaneous swelling of the cervical glands; sleeplessness, restlessness in the evening and first part of the night. Where no amelioration is seen in a week the remedy will be better discontinued. He gives *Merc. sol.*³ (*Rhus tox.*³) for chronic capillitic eczema; the groups of vesicles discharge continually a fluid, matting the hair together and causing a burning-itching. In obstinate cases it may be advisable to give *Merc. præc. rub.* internally and externally. Chronic eczema behind the ear and copiously discharging improves quickly under *Merc. sol.*³ (or *Hepar*); crusty eczema behind the ear, at the lobe of the ear or on the concha require at first the removal of the crusts and then *Merc. præc. rub.*, which also acts well in crusty eczema of the nipples, with fissures and rhagades, also in chronic eczema rubrum umbilici, externally (1 gr. to 2 drachms fat). Chronic eczema on the dorsum of the penis improves under *Merc. sol.*³, two doses daily; but where we find sore, horizon-

tally running streaks, it is better to combine the internal and external use of Merc. præc. rub., especially where there are also rhagades and fissures. (*Rüseberg* prefers Merc. bijod. in such cases.) In chronic eczema of the extremities the indications are the same as in capillitic eczema. In eczema, caused by dirt, sweat, etc., and where cleanliness and anointing with fat does not suffice, he gives to the children Calc. carb. or Merc. sol.

Hughes considers Hg. specific for eczema rubrum, as it is pathologically identical with eczema mercurialis, and expects also some benefit in eczema impetiginosum.

Jahr gives Mercur. for the impetiginous eczema on the hand and fingers and of the ears.

Marsten finds it indicated in eczema of the lower extremities; *Blake* in vesicular eczema, although it does not cure every vesicular eruption; *Guernsey*, where we meet also salivation and scorbutic gums; *Cl. Müller* considers it the chief remedy in eczema, especially of the extremities, and here again most frequently on the lower ones. Sulphur alone could be compared to it in value, still he prefers Mercur. as long as there are no complications. Even where there was already considerable infiltration, and the patient was unable to take the necessary care of himself, Mercur. sufficed in many a case for a cure; but where there is considerable swelling and a varicose state, he prefers Sulphur. For the capillitic eczema (tinea capitis), found so frequently in children as eczema impetiginosum, with swelling of the lymphatic glands, Mercur. is less sovereign. In complication with impetigo or real ulceration, he gives Mercur., especially in impetigo on and behind the concha auris, sometimes also Sulphur. Both remedies are also indicated in eczema scroti. Mercur., in fact, suits every eczema, except the papular, especially those running an acute or subacute course. Where Mercur. fails in chronic cases after a week or so, it is no use to expect anything from it. All mercurial preparations act well in eczema; least perhaps the corr. Merc. bijod. is preferable for rhagades, and Merc. viv. in chronic and less humid cases; Merc. sol. in all the common forms.

d. Bullous Inflammations.

Fourcroy mentions the case of a bullous exanthema in a gilder. In the case of poisoning with Hg. oxyd. nigr. and Ung. ciner., No. 1, we see bullæ on an inflamed basis, not on normal skin as in pemphigus.

Wolfsheim observed from Merc. corr.: Burning and redness of skin, a bulla forms containing a yellowish serous fluid, raising the cuticle, and after being lanced, drying up with scaling of the epidermis. *Bæhr* mentions Hg. in pemphigus. He saw in Vienna a case of pemphigus in a nurse, who for several years attended the syphilitic wards, and who had rubbed a large quantity of mercury with her hand.

Schelling cured a case of pemphigus with Merc. sol. We have to rely here on general symptoms rather, as Hg. does not give the characteristic symptoms of pemphigus.

e. Pustular Eruptions.

Pustular eruptions, caused by mercury, are mentioned by *Herrmann*, *Jussein* (in *Almaden*), *Alley* (8 cases which ended fatally), *Girtanner*, *Gardane*, *Stoll*, *Fleury*, *Hacker*, *Kahleis*, *Acherson*, etc. *Van Chersante* described small-pox-like, copper-red pustules, on the face of a gilder, suffering from tremor.

Dieterich's impetigo we mentioned in eczema. He also describes a phylodactylus mercurialis, differing from acne syphilitica, that the nodules appear on hairy parts with violent itching, of a dark pinkish color, and remaining thus for years, whereas acne syphilitica appears everywhere on the skin, causes no itching, is of a more coppery color, and does not last so long. The latter attacks first the chest and the forehead, more rarely the extremities, whereas in the former it is just the opposite.

In *Calomel* we see in No. 6 great pustules over the whole body with ulcerations, but this case might have been complicated with syphilis. But in No. 9 *Calomel* caused pustules over the whole body, which dried in (showing great similarity to small-pox).

Cooper witnessed after Merc. corr. pustules on the forehead.

Andrien observed in his experiments with *Merc. bijod.* hardened pustules (in 12 provers) once, the proving being made with the third decimal trituration.

Merc. sol.: A very painful pustule on the nose; on the chin a pustule full of pus, of the size of a pea; small-pox-like eruption immediately above the anus, with pressing pain when sitting; a small red boil with red tip on the glutæus, with a stitching pain in it; pustules on the upper and lower limbs, the tips of which are filled with pus, with itching: small itching pimples, afterwards changing to ulcers, during the healing of which the surrounding skin peels off; round stigmata on the thighs and legs; gradually changing to round, ulcerated spots, and becoming finally covered with a scurf.

Kajka uses *Merc. sol.* and *Merc. præc. rubr.* for pustular eruptions. In *acne disseminata* he gives *Merc. sol.* where the papular form prevails, the inflamed follicle remaining at the acme of inflammation, without passing into suppuration, forming a bluish-red stigma, which, after detumescence, becomes covered with small scales, and gradually decreases in size. Of *syrosis* he says: We cut away the hair of the beard, of the eyebrows, of the axillæ and *mous veneris*, extract with fine tweezers the hairs which penetrate the stigmata, pustules, or crusts, soften the crusts with oily applications, prescribe internally *Merc. præc. rubr.*², a dose morning and evening, and apply the red precipitate ointment over all sycotic spots, at least twice a day. As often as fresh stigmata or pustules arise, the hairs must be again extracted, which manipulation ought to be nearly painless; and continue the external and internal use of red precipitate, till all stigmata and pustules have disappeared and no new ones make their appearance.

According to *Behr*, *Mercur.* acts well in infantile impetigo of the face or hairy scalp, where the impetigo has a very red base (*eczema impetiginosum*). In *ecthymæ* *Tart. stib.* is preferable to *Mercur.*

We learn from the impetiginous *eczemata* and pustular eruptions, caused by mercurial inunctions and the internal use of Calomel, that these two preparations may be considered chief remedies for the rare, but frequently fatal eruption, which

Hebra calls *impetigo herpetiformis*, and which so far has been exclusively observed in women during pregnancy or puerperium.

f. Squamous Inflammations of the Skin.

In *Hahnemann's* proving we find the following symptoms: Skin dirty-yellow, rough and dry; reddish-white, rough, herpetic spot on the left malar bone; burning, corrosive, humid and itching pimple on the right lobule, having a scaly appearance like herpes, which he has to scratch; the left arm, especially the elbow, is covered with small, red, not inflamed elevations, the tips of which become white, scaly and itching; they burn when scratched; herpes on the right forearm, round, the skin peeling off, with voluptuous itching, and lasting 18 days; large, red, round, scaly spots, with burning pain, one inch in diameter, on the forearm and wrist; herpes on the posterior surface of the thigh, painful when scratched, and the epidermis coming off when scratching, for 30 days; herpes, causing a burning when touched; dry, elevated, burning-itching herpes over the whole body, especially extremities, arms, joints of the hand even between the fingers; rhagades, as they appear in psoriasis, especially on the flexor surfaces of the extremities, palma manus and planta pedis and on the face. Merc. sol. has fissures and rhagades of the corners of the mouth; deep fissures in the fingers, looking sore and bloody at their base; the fingers look as if they had a cut, especially on the inner surface; a deep fissure, like a cut, between thumb and index-finger, bloody and painful.

Hence we may conclude, that squamous eruptions only arise from the action of small doses; sometimes after a few doses of Merc. sol. or Merc. viv., the only two preparations which manifest such symptoms.

Whereas *Buhr* and *Kafka* fail to mention Mercur. in psoriasis and pityriasis, *Hughes* witnessed good effects from Mercur. in recent affections of the hands, and even in chronic cases it will act beneficially, though we may need Arsen. to finish the cure, where this is possible.

Jahr praises Mercur. in psoriasis infantilis and syphilitica.

Cl. Müller considers *Mercur.* to correspond fully in its skin symptoms to psoriasis, although it must be admitted that the usual and characteristic Hg. exanthemata fail to show the specialties of psoriasis. After giving the usual squamous symptoms he adds: The parts of the skin remaining unaffected by *impetigo mercurialis*, become rough, dry, somewhat fissured, and continually desquamate white, bran-like leaflets, especially on the hairy scalp, beard and eyebrows, but the face escapes. The occurrence of psoriasis in syphilitic organisms is an argument in favor of mercury; but even where such a complication was not present, I have witnessed good effects from *Mercur.*, after the fruitless use of *Arsen.*, or where the latter produced only a temporary amelioration. This most frequently happens in cases where the lower extremities are especially affected. He uses mostly *Merc. sol.*; in rare cases, *Merc. præc. rubr.*

g. Papular Inflammations of the Skin. (Lichen, Prurigo).

In Case 25 we find that *Mercur.* caused a papular eruption on the back.

Merc. sol.: Under the skin of the left cheek a large tubercle; heat and redness of the lobule which is excessively painful. Two days afterwards a tubercle forms in the left lobule which lasts twelve weeks; the left arm, especially the elbow, is covered with small, red, not inflamed elevations, the tips of which become white, scaly and itching, they burn when scratched; small pimples on the inner surface of the thigh, itching and relieved by scratching; small efflorescences on the inner surface of the thighs.

Merc. subl. corr.—*Knorre* speaks of a fine red eruption over the whole head (*A. H. Z.*, 19, 283). *Trousseau* observed a papular exanthema on the calves, similar to lichen agrius.

Cinnabaris: Stinging-itching of the neck and chest, with swelling of the cervical glands; red points and spots on those parts changing to hard little blotches, with burning and increased itching after scratching. In the morning a red papular eruption without itching on both elbows, worse on the left. Whereas *Kafka* does not mention *Mercur.* in lichen, he says of it in *prurigo*, that *Merc. sol.* corresponds to most of the

symptoms, and during the first stage of development he found the use of this preparation beneficial in children as well as in grown persons. Efflorescences, arising spontaneously from some unknown cause and causing violent itching during the night and becoming pale red in consequence of the scratching and rubbing, become paler and smaller after five to six days and the itching diminished so rapidly that after six to eight days sleep was fully restored. The efflorescences either remained in *statu quo* without causing any further disturbance or passed off entirely. In old cases other remedies are required.

Cl. Müller gives in *prurigo* Mercur. (or Ant. crud.), when complicated with eczema, impetigo and ecthyma, both remedies also in *prurigo genitalium*. Inasmuch as the phylodermia mercurial, mentioned by Dieterich, has great similarity with *Lichen pilaris*, we may try it whenever the indications correspond.

In *prurigo* and *lichen scrofulosorum* Cinnab. may act in some cases better than Merc. sol.

4. LUPUS.

Lupus is a cutaneous neoplasma; Mercur. never produces such and therefore cannot be indicated. But *Merc. bijod.* causes tubercular formations in the skin and especially when caused by syphilis it may find its place in the treatment of lupus tuberosus, and other mercurial preparations may be used in lupus exedens to restrict the ulcerative process.

According to *Kafka*, where syphilis is suspected, the protoiodide of Mercur. 2d or 3d (or Nitr. ac.²) may be given for some time in an ascending scale. *Juhr* mentions Mercur. here among the remedies of the third order. *Cl. Müller* has sometimes witnessed beneficial results from Arsen. and Mercur. but they failed entirely in other cases. In one case, where the affections already lasted ten years and where the left eye, the nose and upper lip were totally destroyed and the lower lip partially, the destructive process was stopped by the use of Mercur.

5. CUTANEOUS ULCERS

In Hahnemann's case of poisoning with *Calomel* cutaneous ulcers were found on several places. Poisonings with *Merc. corr.* run too rapid a course and hence ulcers are out of the question. Simon observed from *Merc. cyan.* (3) ulcers with diphtheritic deposit around the anus. We find in *Merc. sol.*: Red ulcers of the size of a millet-seed on the right side of the chin, painless when touched; suppurating, small, red ulcers on the left side of the knee, painless; gnawing-itching ulcers on the outer side of the right thigh, necessitating scratching; small, itching pimples, afterwards changing to ulcers, during the healing of which the surrounding skin peels off; dropsical persons lost their swelling, in the place of which fetid ulcers made their appearance on the legs, which became speedily putrid. Symptoms suggesting chancre are: A number of small red vesicles at the termination of the glans behind the prepuce, changing to ulcers, which burst and discharge a yellowish-white, staining, strong-smelling matter; afterwards the larger ulcers bleed and when touching them a pain is felt in them which affects the whole body; they are round, their edges, which look like raw flesh, overlap the ulcers, the base of which is covered with a cheesy lining; burning around the glans in the evening, afterwards vesicles on the inner surface of the foreskin, which soon form little ulcers, healing rapidly.

Kafka says in the therapy of the *inflammatory ulcer*: We give *Bellad.*³, a dose every hour where the pain is severe, the secretion scanty, and the swollen, red and hot periphery of the ulcer surrounded by blisters; or *Merc. sol.* (or *Rhus*) where the secretion is acrid and corroding, producing an eczematous eruption at the edges and in the neighborhood of the ulcer. Where the ulcer takes on an inflammatory character in consequence of cold, or where it is very painful, *Mercur.* is indicated. Where in necrotic ulcers numerous worms or maggots are present, irrigation is necessary for their removal, or where this does not suffice, *Aqua Merc. corr.* (1 gr. to 3 ounces distilled water).

Hulfort thus describes the mercurial ulcer, hence also the indication of *Mercur.*: The ulcers usually arise from an ecthyma-

pustule from wounds, scars or ulcers of another character; they have irregular, not sharply defined, slightly elevated edges, an irregular indented form, a dirty grey base (as if covered by blotting paper) and are surrounded by a red halo, bleed easily and are not very sensitive. They heal easily in one place, to break open again in another. Scrofulosis in ulcers is another indication for *Mercur.*

6. SYPHILIS OF THE SKIN.

Where syphilis is the cause of the already treated papular, squamous, pustular, bullous, ulcerous, cutaneous affections not treated by *Mercur.*, we have one more indication for this drug, and *Merc. sol.* or *vivus* will mostly suffice. In condylomata we use *Merc. cyanat.*, in tubercles and rhagades of the skin *Merc. bijod.*

We have only still to consider the *macular syphilides* and *rupia*. Keller, Hermann, Halford observed macular eruptions in workers with Hg., and numerous cases could be mentioned where they appeared after the internal and external application of mercurials.

Merc. subl. corr. (61): Over the whole body an eruption of pale red, apparently elevated, roundish maculæ, disappearing by pressure of the fingers, not sharply limited and itching; in some places they become confluent, like rubeola.

Merc. sol.: Red spots on the face; eruption of red, elevated spots, itching and stitching. In Andrien's provers: red spots with small maculæ at the upper and lower extremities and on the trunk, not on the face, with severe burning-itching.

Whereas *Hermann* considers *rupia* the exclusive product of hydrargyrosis and the representative of mercurial eruptions, *Hebra* considers it caused by syphilis. At any rate we know that *Mercur.* produces pustules which become incrustated and may try it in *rupia*, if not caused by large doses of the drug. *Kafka* recommends *Merc. bijod.*, internally and after softening and removal of the crusts *Merc. corr.* externally. *Hughes* says: If it is true that *rupia* appears rarely in syphilis, not maltreated already by large doses of *Mercur.*, the latter may become a useful remedy for the simple form.

Eruptions of secondary syphilis yield best to *Cinnabaris*; the tubercular syphilide of tertiary syphilis is amenable to *Merc. bijod.*, especially where there are also ulcera faucium and broad condylomata. Where the tubercles are already exacerbated (lupus syphiliticus) and the condylomata show fissures and ulcers, *Merc. præc. rub.* may be prescribed internally as well as externally, and if no amelioration sets in it is advisable to change to *Merc. bijod.* Squamous syphilis does not need *Cinnabaris* as long as there are no ulcers in the folds of the skin, but as soon as fissures or ulcers appear we use red precipitate internally and externally.

Bæhr uses *Cinnabaris*, *Merc. jod.* and *bijod.* in syphilitic skin affections. *Andrien* gives *Merc. bijod.* for syphilides with indurated bases, or with ulcers with callous edges.

Gerson recommends *Merc. præc. rub.* for that form of syphilides where one solitary place, especially on the extremities, papular eruptions form of a brown-red color which burn and itch, have a doughy feeling, burst and form ulcers of the size and form of half an apple. These ulcers are mostly circular, have only slightly elevated edges, a lardaceous base, secreting pus abundantly. He also uses it in lupous and impetiginous syphilides where ulceration takes place under the crusts, showing the characteristic symptom of chancre which so closely indicate *Merc. præc. rub.*

Merc. bijod. corresponds to those syphilides whose chief element is the nodule, and whose especial form is the elevated, round herpes. He also recommends this preparation for a peculiar form of tertiary syphilis, appearing exclusively on the scrotum. Without any general discoloration or inflammatory irritation of the scrotal skin, we find deeply penetrating indurations of the size and form of a struma, on whose surface continual desquamation takes place; so that the denuded surfaces look like raw flesh, on which thin diphtheritic exudations form. These places itch and burn violently, and whereas some pass off, new ones reappear. This is a very obstinate, painful syphilide, but it will yield readily to *Merc. bijod.*

Espanet prefers *Cinnabaris* for the vesicular form, for isolated vesicles and patches on a reddish base; for the red, erysipela-

tous tumors on the cheeks and eyelids; for the *plaques muqueuses*, the inflammation of the nose with copious secretion, and with simultaneous vesicular affection of the lips. *Calomel* suits especially the abscesses of the anus; *Merc. bijod.* the nodosities, indurations and tubercles; *Corrosivus* the obstinate cases, the cachectic state, the destructive ulcerations and the red spots, migrating from one place to another; *Merc. nitr.* intertrigo and excoriations; *Merc. viv.* and *sol.* the non-syphilitic zona, even in preference to Arsen., Graphit., Caustic. and Phosphor. In psoriasis he prefers *Merc. corr.* to *Cinnabaris*.

Syphilis is frequently combined with *alopecia*, a symptom also found in Hg.; even Kussmaul found it in workmen on mirrors. We meet the same symptom also in case 34 and 35, from *Merc. viv.*, and in *Merc. sol.* we read: The hair comes out without any headache, and there is exfoliation of the fingernail; the nails of the fingers and toes ulcerate with itching.

7. PARASITES OF THE SKIN

Scabies.—Small, internal doses of Hg. will not destroy the *acarus*; we need for that purpose the external use of Sulphur. Still we meet indications for the use of Hg. even in *Virchow's Pathology and Therapy*, I, 471, where he says that it depends greatly on the soil on which the *sarcoptes* flourishes, inasmuch as in some cases these parasites may pass through their whole development in man, fructify, deposit their eggs, and give birth to a new generation, without our meeting a trace of scabies. *Mercur.* also produces all those cutaneous eruptions which are produced in scabies by the irritation of the parasite and by scratching. A large dose of Hg. might therefore render the soil suitable for the development of itch, and small doses correspond therefore to scabies in a twofold manner. We find, furthermore, the itching in places, free from the furrows made by the *sarcoptes*, and there also the efflorescences caused by the scratching.

Kajka gives in Sulphur-eczema, caused by the heroic treatment of scabies, *Merc. sol.* 2 or 3 doses a day, especially when they become obstinate, secrete copiously, and itch so terribly that the sufferer is forced to scratch. *Blake* considers theoretic-

cally Mercur. far more indicated in scabies than Sulphur, inasmuch as the characteristic eruption of Sulphur is papular, but scabies more vesicular; although we also find pointed tubercles mixed with the vesicles. The mere diagnosis of scabies fails to indicate Sulphur, and wherever we find vesicular eruption, Mercur. is certainly to be preferred.

GENERAL DISTURBANCES OF NUTRITION.

1. *Anæmia, Chlorosis.*

Headland's studies prove, that in chronic toxications with Hg. the blood not only becomes poorer in fibrine and albumen, but that it also loses one-third or more of its blood-corpuscles. We meet at the same time paleness of the skin, which is relaxed, wrinkled and cold; the face is pale, sallow, the cheeks sunk in, the nose pointed. The visible mucous membranes are pale, and of a bluish, muddy-looking color. There is general malaise and lassitude; he feels always chilly; the feet become œdematous, whereas all other parts of the body are emaciated. Buzzing in the ears, vertigo, syncope, are frequent symptoms, also periodical attacks of pain. Dyspepsia, retarded stool, irregular and scanty menses, leucorrhœa, sleeplessness—in short all the symptoms of anæmia, as we find them after great losses of fluids, hemorrhages, and all the symptoms of chlorosis are again found in chronic mercurialism.

Canstatt and Marshall Hall consider the so-called mercurial erethismus as an acute anæmia. *Dieterich and Falk* described it thus: after Hg. has been taken for some time, a chlorotic state of the body arises, with pale face, great restlessness, sighing and yawning, lassitude, loss of power, and emaciation. Respiration frequent, chest oppressed with a sensation of constriction, fluttering in the præcordia; pulse small, frequent, sometimes intermittent. With the progress of the disease the adynamia also increases with a steadily increasing sensation of anguish in the præcordia, of the sighing and yearning, of the beating and fluttering of the heart. The function of the latter in general becomes more irregular, so that during sleep the beat of the heart can hardly be felt externally. A gradually in-

creasing tremor of the whole body is now added to the other ailments, especially of the fingers and corners of the mouth; desire for sour drinks; sometimes vomiting of food or mucus, of bile; diarrhœa off and on, of a green color, followed by constipation, even choleraic attacks; fainting spells, pale, collapsed face, sensation of coldness over the whole body, with excessive debility. Death frequently sets in very suddenly in consequence of the debility of the heart, when the patient exerts himself a trifle during a walk or at home; even rising up in bed may kill him. Bellows murmur has been heard in the carotids and veins of the neck. *Hermann* mentions twenty-two cases of anemia in his one hundred and twenty-two patients.

Kafka mentions Merc. sol. among the remedies for *congenital anemia*, when the children do not wish to go to sleep; also for the *anemia of evolution*, with copious salivation, chronic stomatitis or gingivitis.

Goullon, Jr., justly remarks: We are astonished that Mercur. is not more frequently mentioned as a remedy for chlorosis, as its pathogenesis in that disease is as rich as that of Calcar., Pulsat., Sulphur, Sepia, Platin. and others; many think of it only during the prodromal stage, which is one of scrofulosis. Still we find in Mercur. as chlorotic symptoms: disagreeable, metallic taste, loss of appetite; nausea, coated tongue, foul breath, loose gums, labored respiration, pressing, tensive sensation in the precordia; abdominal restlessness, sleeplessness, lassitude, loss of strength, tremor of extremities, pale, sallow features, pale lips, blue rings around the lustreless, sunken eyes. All these symptoms are found in allopathic works, just as they give us also the poverty of blood-globules, the decrease of fibrine, serum and alkaline salts. We would recommend Mercur. especially in protracted cases of chlorosis, appearing in connection with polyuria, profuse loss of fluids during suppuration; sweating, salivation, hemorrhages, diarrhœa. We do not find in mercurialism an increase of the white blood-corpuscles, and leucæmia therefore excludes Mercur.

2. *Diabetes Mellitus.*

Sackowsky observed in rabbits after subcutaneous injections of 0.02 to 0.04 grammes of Merc. corr., that in twelve cases eight times the urine was passed in larger quantities, pale and transparent, containing more or less large quantities of sugar. In five cases the diabetes was so severe that two centimetres of urine during a fermentation of forty-eight hours and at a temperature of 31° C. gave between 3 to 4 centimetres carbonic acid. This artificially produced diabetes lasted sometimes four to five days, in one case a whole week and the animals survived. Two dogs were slowly poisoned by subcutaneous injections of 2 grain doses for thirteen or fifteen days; they emaciated fearfully and suffered for four weeks from violent diabetes. *Calomel* and *Hg. jod.* cause the same symptoms.—*Virchow's Archiv. f. Path. Anat.*, Vol. XXXVII.

Kletzinsky observed in the hydrargyrosis of man an increased secretion of sugar in the urine. In their respective chapters we treated already the polyuria of *Mercur.* as also the furunculosis and dryness of the skin.

Jahr mentions *Mercur.* favorably among the remedies for diabetes, and *Goullon* remarks that *Jousset* failed to see any benefit in diabetes mellitus from *Mercur. præc. rubr.* As this mercurial preparation has never been proved, we have no strict indications for its use; yet it certainly makes some difference which preparation we use. *Merc. sol.* and *dulc.* have important relations to the liver, and we may expect the same from the red precipitate. At any rate its administration was followed in one case by very large bilious stools; but it must be added that the patient took at the same time rhubarb and drastic pills. The patient had taken for his diabetes mellitus eight powders of *Merc. præc. rubr.*, each containing one-third grain. The cause of the disease was a fall from a great height, causing loss of consciousness, somnolent stupor; cerebral symptoms with diminished frequency of pulse; all symptoms which *Cl. Bernard* produced by his pique on rabbits.

3. *Scrofulosis.*

Hermann found in Ischia among 122 patients, fifteen grown persons suffering from scrofulosis. He considers this disease endemic in Ischia and gives us the interesting fact that two children, born at a time when the parents worked in salt mines, were not scrofulous; whereas those born in Ischia suffered from it, although the parents enjoyed all the time excellent health. It is evidently the atmosphere at Ischia, impregnated with Hg., which produces the disease. *Hermann* saw scrofulosis also in persons making barometers or working in looking glass factories, where all the children suffer from it, whereas the parents suffer only from hydrargyrosis, and not from scrofulosis.

Mayr, of Furth, witnessed frequent abortions or dead fetuses in pregnant women working in looking glass factories, and their infants, born alive, suffer from scrofulosis, rachitis, eruptions and miasmus. *Keller* says that the children of such parents look pale and cachectic, showing clearly the scrofulous type and anæmia. Want of animal food and low, ill ventilated dwellings cannot be blamed for it, as the children of parents living under the same circumstances, but having different labor, do not suffer in like manner. *Schneider* found in autopsies of workers with Hg. indurations of the lymphatic glands. *Graves* says that syphilitic patients, who take a large quantity of Hg., easily fall into a state of mercurial cachexia, looking exactly like scrofulosis. They exhibit emaciation, nutritive disturbances, irritability, fever, affections of the skin, of the lymphatic glands, of the periosteum.

Having treated already of most of the affections, it remains only for us to study those of the lymphatic glands. *Habershon*, *Guldbrand* and *Dietrich* mention them in general, *Mathias* especially the bubo mercurialis, and *Hunter* the hypertrophy of the inguinal glands. *Dietrich* also witnessed from the internal use of Merc. dule. intumescence of the mesenteric glands. As the swelling of the lymphatic glands is caused by infiltration with cellular elements, we see here again a part only of the general action of Mercury, showing us that this drug never produces a neoplasma, not even of connective tissue.

In *Merc. viv.* we find: Swelling of the maxillary glands (2); left submaxillary glands swollen (15); both (49, 50, 51); swelling of the glands of the neck and throat (25); submaxillary glands swollen, hard and painful (26); anterior lymphatic glands of the neck hard and large (34). In 25 we see that the children of a barometer manufacturer suffer and some of them die from scrofulosis.

Merc. sol.: Painful swelling of the glands of the neck and ear, so that the jaws cannot be moved; stitching pains of the cervical glands, and symptoms 510 to 525 relating to bubo.

Goullon justifies the use of mercurials in scrofulosis, as we know that they all modify the lymphatic system and produce in the whole organismus a state similar to scrofulosis. *Hunter*, *Vigaroux*, *Samuel Cooper*, *Richerand*, *Alibert*, etc., show that persons exposed to the noxious influence of Hg., frequently have scrofulous children. Without putting too much stress on the source of scrofulosis, as homœopaths we should take note of such experience.

Goullon mentions as manifestations of scrofulosis: Inflammation of the glands with phlegmonous redness, swelling and pain; evening aggravation; blepharodentitis with ulceration of the cornea and photophobia; atrophica meseraica with debilitating diarrhœa and fever of dentition; coxalgia; coryza with copious discharge from the nose; panaritium in the inflammatory stage; osseous affections; eczema, stomacace, otorrhœa.

Kafka says of *Merc. sol.*: In eczema scrofulosum on and behind the ears, when the edge and base of the eczema is red and hot, the discharge copious, we give *Merc. sol.*, two or three doses daily till we see a decided amelioration. Only then he allows the crusts to be softened with oil and applies the red precipitate ointment on the affected parts, continuing at the same time the internal use of *Merc. sol.* in acute coryza, in chronic coryza with purulent, blood mixed, foul-smelling discharge, or with dry crusts, or with ulcerating nostrils; we sometimes fail to see any benefit from *Calcar.* or *Silic.*, and then *Merc. præc. rubr.*, internally and externally, is indicated. In acute swelling of the lymphatic glands *Mercur.* is indicated, when the gland feels hard, is not intensely red and not too

sensitive to the touch (after Bellad.) and may be continued even when suppuration threatens, or when, without going into suppuration, the gland remains hard and painless (Bellad. or Conium). In scrofulous inflammation of the joints, after the removal of the inflammatory symptoms, in order to induce absorption (Bryon., Arnica, Sulphur).

Buhr considers as general anti-scrofulose remedies: Calcar., Arsen., Ferrum and Sulphur, and uses Mercur. where specific indications exist. We rather count it among the former after Calcar. and Sulphur.

According to *Lobethal* Mercur. in general corresponds to the diseases of reproduction and vegetation, to those of the lymphatic glands, the skin and the serous and mucous membranes; only secondarily to the blood and nervous system. It suits, therefore, the leucophlegmatic habitus, the bloated skin with tendency to cold and sweat. The fuller the reproductive power, the more depraved the nutrition, the slower the mental development from bodily weakness, the more Mercur. will be indicated; a remedy hardly ever suitable to the choleric or choleric-sanguine temperament with its dry skin and tense fibre.

Espanet considers Mercur. not only to correspond to the glandular swellings and to the subacute phlegmasiæ of the mucous membranes, but also to the advanced stage with its night-sweats, colliquations, rapid emaciation, indurated or ulcerated glands; encrusted and itching eruptions, especially on the hairy scalp; frequent and jumentous urine, lenteria, diarrhœa, enlarged abdomen and rachitis. Merc. sol. or viv., in alternation with Sulphur, is useful in scrofulous indurations of the skin and cellular tissue.

4. *Scorbutus.*

Post-mortem examination of persons dying from scurvy, or from chronic poisoning with Hg., alike give us the following results: Extreme emaciation of the cadaver, moderate œdema especially of the lower extremities, a sallow color of the skin, which is covered with dry scales of the epidermis. Extravasations here and there in the cutis and subcutaneous cellular

tissue, the blood very fluid and dark; the endocardium and the walls of the blood-vessels strongly infiltrated (especially in corros.), serous or sero-fibrinous exudation in the cavities of the pleura, pericardium, peritoneum and in the articular capsules; the liver, spleen and kidneys full of ecchymoses, relaxed, full of blood and infiltrated with extravasated blood, ecchymoses are even found between the serosa and muscularis of the intestines.

We miss a characteristic symptom of scurvy in acute and chronic poisoning with Hg., the tough, red infiltrations under the skin, between and in the muscles and in the periosteum. The latter have nothing in common with the gumma, as they are not a sequel of periostitis.

Both have in common: Debility and lassitude, depressed mood, pale and dirty complexion; eyes sunken and surrounded by blue rings; tearing, stitching pains in the extremities, stomatitis, ecchymosis, hemorrhages from nose, lungs, kidneys, stomach and female sexual organs.

Merc. viv.: Round, dark red petechiæ on the abdomen and lower extremities, hemorrhages from mouth, nose, eyelids, forehead, bloody urine (48).

Merc. corr.: The cortical substance of the kidney full of small red points, towards the infundibula. Ecchymosis in the ovary (27), numerous reddish-grey, round ecchymotic spots, not disappearing by pressure, over the trunk and extremities; especially numerous in the small of the back (43); bloody discharge into the stomach (53); mucous membrane of the stomach inflamed, softened, discolored from the extravasated blood (57 and 59); ecchymosis under the serous membrane of the stomach (27); coagulated blood in stomach (28, 37); discoloration in the large curvature of the stomach, near the pylorus (34); ecchymosis in cæcum, like hemorrhoidal knobs, more numerous near the anus (28); intestinal mucous membrane covered with ecchymosis (29); darkened spots on the inner surface of the duodenum (41); ecchymosis in the endocardium. We see thus that the corrosivus corresponds most to scurvy; while the *Merc. dulc.* is preferable where the gums are especially affected.

HYDROPS.

A sequel of many diseases of the heart, lungs, liver, kidney, anæmia, etc. We have seen already that chronic hydrargyrosis produces dropsy, especially anasarca; without showing whether it emanated from the liver or kidneys (we may exclude heart and lungs), or whether the whole blood mass became affected.

Mercur. suits anasarca of the lower extremities, especially that arising from eruptive diseases, as scarlatina, or from hydræmia. Inasmuch as Hg. also affects liver and kidney, and inasmuch as we already mentioned that in poisoning with corros. death ensues sooner than the possible appearance of dropsy, we consider the corros. indicated in nephritis and hydrops post scarlatinum.



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